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AMIGA SHOPPER

The top-selling serious Amiga magazine

ISSUE 17 • SEPTEMBER 1992 • £1.50 • YOUR DEFINITIVE GUIDE

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dtp

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AMIGA SHOPPER AT A GLANCE GUIDE

To help you find what you want quickly and easily, this is a cross-referenced list of all the products and subjects covered in this month's *Amiga Shopper*. The subjects covered in Amiga Answers are detailed on page 29; the many PD programs covered on page 128 are outlined there. The page numbers given are for the first page of the article in which the product is mentioned.

Are there any products or subjects you'd like us to take a look at? Well, just drop a line to:

Amiga Shopper,
30, Monmouth Street,
Bath BA1 2BW.

WELCOME

It must be a great time to be fly on the wall in the offices of Commodore UK. A new Managing Director, Kelly Sumner, has only just recently been promoted, the A600 is hitting the street in force, the A570 CD-ROM drive is just about to ship, CDTV is shaping up to take on Philips' rival CD-I system, and there are two new Amigas in the pipeline. Which all add up to one thing: how can I get to plant a surveillance bug in there?

One way is simply to phone up the new boss and tape everything he says – which is exactly what Cliff Ramshaw did the other day. The results are printed on pages 10 to 12 and very interesting reading they make to. Besides confirming that the replacement for the A2000 is only four months off and suggesting that, yes, a new Amiga chipset could well be on its way, he went so far as to say he knew that a number of developers were already working on a memory card adaptor for the A500. Which is great news.

But while Kelly is convinced the prices of memory cards will drop to affordable levels, I'm not so sure. You're currently looking at paying around £70 for one of these little beauties and who's going to develop software with that as a unit overhead. OK, say mass economies bring the price down by half in a year or so – it's still a helluva lot of dosh. Compare it to the unit price of mastering a CD-ROM – around 70p – and you'll see what I mean.



So I put my money on the memory card slot being used as a port for new hard disks, RAM expansions, FAX/modems and the like.

Anyway, these are indeed exciting times for the Amiga range and I'm sure '92 will go down as a more significant year than '85 – which is when it all began. Enjoy the ish.

Andy Storer

Editor

PUBLIC DOMAIN WORLD

MAGNETIC PAGES

There are thousands of Amiga programs which are available for little more than the price of a disk. And many more which allow you to try the software free before you buy. Each month in Public Domain World we examine the best of these programs and explain how to get hold of them.

This month we focus on a new PD spell-checker, a touch typing tutor and an authoring package for designing your own diskzines.

Public Domain World or

the low-cost low-down

as we call it this month, starts on page 128

AMIGA ANSWERS

18 PAGES DEVOTED EXCLUSIVELY TO ANSWERING YOUR QUESTIONS

Every month in Amiga Answers our panel of experts answer more genuine reader questions than any other Amiga magazine. And for beginners our easy Expert Tips will help you get to grips with your Amiga, and understand the other features in this month's issue.

We answer questions every month on Workbench • The CLI • Comms • Programming • DTP • Video • Business software and more.

THE ANSWERS START ON PAGE 31

FOR A FULL LIST OF CONTENTS, TURN THE PAGE

Your guarantee of value

This magazine comes from Future Publishing, a company founded just seven years ago, but which now sells more computer magazines than any other publisher in Britain. We offer:

Better advice. Our titles are packed with tips, suggestions and explanatory features, written by the best in the business.

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INSIDE THIS ISSUE

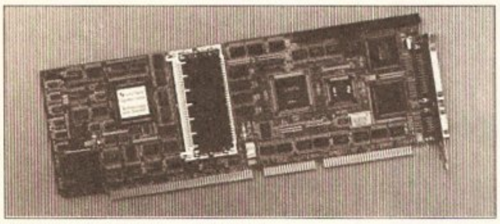
AMIGA SHOPPER
Issue 17 September 1992

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ABC audited circulation: July-December 1991: 45,209 copies/month
Printed by Thamesmouth Printing
News Trade Distribution – UK: Future Publishing 0225 442244
Worldwide: MMC Ltd 0483 211678

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So how about winning another year's free subscription then chaps? - This month all we want you to do is send us the names of the male glove-puppet chummies of the furry rodent funster referred to somewhere in these pages. You got 'em? Then just send 'em to: 'Sweep was the coolest dude ever and should've ditched Sooty years ago', Amiga Shopper, 30, Monmouth St, Bath, BA1 2BW. First out the bag wins 12 free issues .
Oh, and last ish's winner was Philip Elworthy - well done Phil - yep it was Tony Curtis!

High powered PC emulation



The Golden Gate – 386 PC compatibility comes to the Amiga

A new PC emulator has been released for the Amiga.

The Golden Gate is a hardware-based emulator that provides a 25MHz 80836SX processor on a card. It plugs into an Amiga 1500/2000/3000/3000T and is claimed to multi-task.

Supplied with 512Kb, the card is expandable via SIMMs up to 16Mb, 4Mb of which can be used by the Amiga. An IDE hard disk controller is also included. The card also works with Amiga RAM expansions and standard Amiga hard drives.

The Amiga's floppy drives can be used by the card as 360Kb and 720Kb MS-DOS drives. An optional floppy disk controller will enable the card to access up to three high density or extra high density drives, with capacities of 1.2, 1.44 or 2.88Mb.

A VGA card in one of the Amiga's PC slots enables the user to take advantage of a full colour VGA display (with an appropriate monitor).

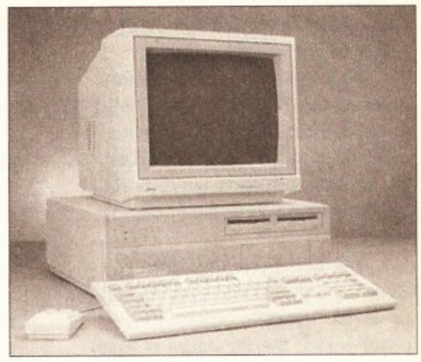
The Golden Gate comes with its own speaker, RTC and CMOS RAM. There is space on the board for a 80C387SX maths co-processor. It costs £499 from Silica Systems ☎ 081 309 1111. Vortex ☎ 01049 7131 597214.

A2000'S DAYS ARE NUMBERED

The new head of Commodore UK, Kelly Sumner, has announced that the Amiga 2000 is to be replaced in four months time.

The revelation came in an exclusive interview given to *Amiga Shopper* shortly after his appointment as managing director of Commodore UK on July 1.

The news comes at the same time as speculation increases over the exact specifications of the two new Amigas believed to be in the pipeline with the most substantial rumours to date emanating from an American beta-tester for Commodore US. **Full details begin on page 10.**



The A2000 is to go the same way as the A500. Now the Amiga community waits with bated breath to see what will replace it

Entertainment extravaganza to hit London

The biggest show yet is going to be at Earls Court this November.

The Future Entertainment Show, open from November 5 to 8, is expected to attract 100,000 visitors. All of the greatest names in hardware and software are expected to be there, in even more force than last year's World Of Commodore Show.



The Future Entertainment Show promises to be the biggest one yet, with 100,000 visitors expected and stands from the best names in hardware and software

As well as holding hordes of goodies for Amiga users, Earl's Court will play host to Nintendo, Sega, ST and PC fans. Computer games will play a large part in the show, with a National Computer Games Championship having its final held there. The stakes are £20,000 in prize money, and the final will be televised as part of Yorkshire TV's forthcoming computer games programme.

Rest assured that the *Amiga Shopper* team will be there to stop things getting too frivolous. We'll be offering tips and advice and our *Amiga Answers* panel will be on hand to tackle 'live' questions.

AMIGAS ON COURSE

The London College of Printing & Distributive Trades is offering a number of design and image processing courses centred around the Amiga.

Courses range from two to four days, costing from £165 to £295. They range from the latter half of August to the middle of September. They will be given by industry professionals and college lecturers. Delegates will have access to their own Amiga A3000s with GVP IV24 graphics cards.

The course titles are: Introduction to Interactive Multimedia Design, Practical Techniques of Interactive Multimedia Design, Digital Darkroom (Digital Image Processing), The Art of Presentation (Electronic Presentation Graphics), and Presentation Graphics for the Designer.

Further details are available from: Short Courses Secretary, Professional Development Unit, The London Institute, Elephant & Castle, London SE1 6SB ☎ 071 793 0077.

SUPERBASE UPDATES FROM OXXI

American based software house Oxxi has announced several extensions to the *Superbase* range of databases.

The rights to the programs were acquired by the company from Precision some time ago (see *Amiga Shopper* issue 10). Fears that it was the end of the line for *Superbase* have been alleviated by Oxxi's demonstration of commitment to the product.

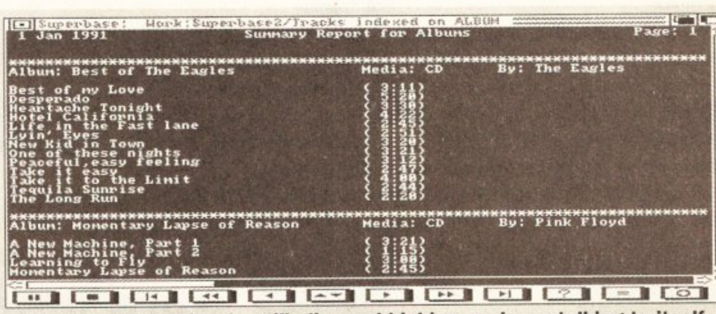
The company has just released *Superbase Personal 4*. The new version will enable users to query not just one file but several. Queries for file updating and mail label programs can be edited, loaded and saved.

A new kind of field, the logical field, has been added, which enables the user to store simple true/false values as part of a database. *Superbase Personal 4*'s files are compatible with all versions of *Superbase*.

Most development has taken place on *Superbase Professional*, renamed to become *SBase Professional*. The first addition is a Local Area Network extension, *SBase Professional 4 LAN*. The program, only available to registered users of *SBase Professional*, will enable users linked to a network to share data files with other *Superbase* users on the network, on Amigas, PCs or Macs.

The software works with Oxxi's Amiga Client Software, which enables Amigas to be linked to a PC Novell Netware network. Once so linked, users can share data files and maintain record locking.

Also new is the Developer's Extension for *SBase Professional*



Superbase Professional – still alive and kicking, and now talking to itself across networks too

which uses a run-time module to enable programmers to create stand-alone database applications which will run independently of *SBase*. Developers must own a registered version of *SBase Professional* before they can buy the Extension. Any applications created can be registered with Oxxi and advertised in the company's guide to *Superbase* applications.

Version 1.2 of *SBase Professional 4* is ready for sale. It corrects the bugs inherent in 1.01 and offers these additions: correct printing of page length, an ask command, improved display and foreign character output and ARexx support. It sells for £233.83. Oxxi's products are distributed in the UK by HB Marketing ☎ 0753 686000. UK prices for most of the above have yet to be finalised. Oxxi ☎ 0101 310 427 1227.

NEW PRINTERS FROM CITIZEN

Citizen has launched the Swift 2 range of dot matrix printers.

The range comprises of three models: the Swift 200, the Swift 240 and the Swift 240C. All of them operate at exceedingly low noise levels, with a special quiet mode being included to reduce noise to 44.5dB.

They make use of Citizen's Command Vue Control Panel system to enable users to control the printers with the minimum of fuss. This goal is further achieved by the printers' Auto-Set facility, which can detect the emulation in use by a computer and alter the printer's settings to accommodate it.

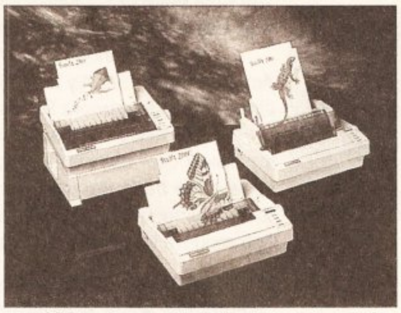
An additional facility enables pages to be printed at a quarter size so that four pages can be printed on one ordinary A4 sheet. It is expected to be useful for users wishing to create pages for inclusion in their personal organisers.

The Swift 200 has six letter quality fonts and one draft font. Colour is available as an option. It emulates the IBM Proprinter X24e, Epson LQ 500/850 and NEC P20, as well as Citizen's proprietry protocol.

The Swift 240 has nine letter quality fonts; two of these are scalable, ranging from 8 to 40 points in size.

Print speed is a claimed 240 characters per second. The printer has a buffer of 8K, expandable to either 40K or 136K. Emulations supported are Epson LQ570, IBM Proprinter, NEC P20 and Citizen's own. A colour option can be added, or it can be bought with colour already installed as the Swift 240C.

Prices are to be finalised, but the 200 should come in at around £250. Citizen ☎ 0753 584111.



Citizen hopes to take the dot matrix market by storm with the release of its Swift 2 range of 24-pin printers

DIARY DATES

September 5: All Formats Computer Fair. National Motorcycle Museum, Solihull. ☎ 0225 868100.

September 12: All Formats Computer Fair. Sandown Racecourse, Esher. ☎ 0225 868100.

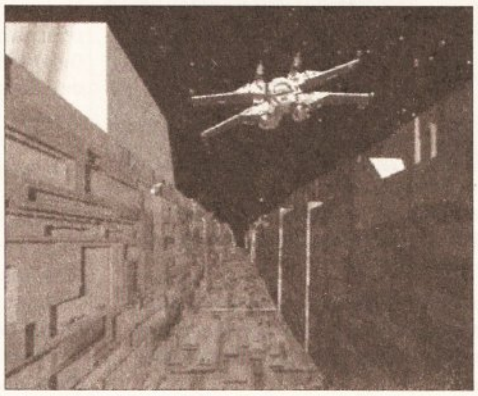
September 19: All Formats Computer Fair. Donington Racecourse, East Midlands. ☎ 0225 868100.

Correction

An error crept into the advertisement for Merlin Express Limited in July. The price for a Philips CM8833/II colour monitor was stated as £129.99, when it should have been £219. Apologies for any confusion.

Space Wars on the Amiga

Two enterprising Europeans have combined their talents to produce an eight minute animated film using Amiga computers.



'This is Red Five – I'm going in!' cried the brave space pilot as he wrenched at his joystick and sent his craft hurtling into the trench

Norwegian Bjorn A Lynne and German Tobias J Richter, already famous for his numerous animations in the public domain, have spent two and a half months creating their masterpiece, called *Space Wars*, which uses spaceships as seen in *Star Trek* and *Star Wars*. Richter created the animations while Lynne storyboarded the movie and wrote the music.

Five Amigas with 68030 processors were used in the creation of the video, along with DCTV and 24-bit graphics. All in all, the data came to 150Mb, held on removable Syquest hard disks. Additional equipment came in the form of *Reflections, Videoscape, DPaint, Scala, Music X* and *AudioMaster III*. An Ensoniq SQ-R Plus, a Korg DW8000 and a Roland Juno 2 were the synthesisers hooked up to the Amiga via MIDI to create the music.

Copies of the video in VHS format with stereo sound can be obtained for £12 from Bjorn A Lynne, Schleppegrellsgt 10, 0556 Oslo 5, Norway.

ROM sharer all ready

Trilogic has released a ROM sharer for the entire Amiga range.

The sharer plugs directly into the ROM socket, without any need for a Gary adaptor, making it suitable for all Amigas including the new A600. The share will take any two Amiga ROMs (not supplied), and will enable the user to switch between them simply by use of the Control/Amiga/Amiga key combination on boot-up. An audible bleep confirms the switch over.

The Trilogic ROM sharer costs £27.99. For an additional £10, Trilogic will fit the unit without voiding your warranty. Trilogic ☎ 0274 691115.

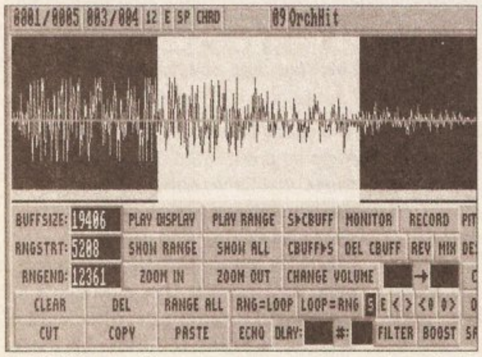
GREEN PAPER FOR PRINTERS

Printer users can now consider the environment and make use of recycled paper for their listings and letters.

Olives Papers has released two brands of recycled computer paper. The first, Olives Laz-a-lyst, is made from paper industry and post-consumer (paper) waste. It is a high quality paper which apparently rivals virgin paper alternatives. The second, Olives Concept, is made entirely from post-consumer waste.

Both types of paper are available in plain or with music rules, in standard sizes of 11x14.5" and 11x9.5".

Further info on the paper which cares for your environment from Olives Papers ☎ 061 705 1886.



OctaMED may be a very nice music program, but that doesn't mean you can use its code in your own programs without permission

Stern warning to breachers of copyright

Amiganuts United has sent a stern warning to the distributors of licensed programs concerning breach of copyright.

The bone of contention is *OctaMED* version 3. While its music routines and the included OctaMEDPlayer can be used within a public domain or shareware program, they cannot be used in a licensed or copyrighted program without permission and a licence from Amiganuts.

It seems Amiganuts is quite prepared to take court action against guilty parties. It says in the letter sent to the distributors: "We should point out that if we find that any program being sold under a licensed/copyright deal which contains the source or OctaMEDPlayer routines from *OctaMED* version 3 onwards, then we will contact our solicitors to facilitate any court action that may be deemed warranted against whoever is breaking the copyright laws of this country."

Amiganuts advised anyone wishing to make use of the said routines in their own licensed or commercial programs to contact the company at: Amiganuts United, 169 Dale Valley Road, Hollybrook, Southampton SO1 6QX.

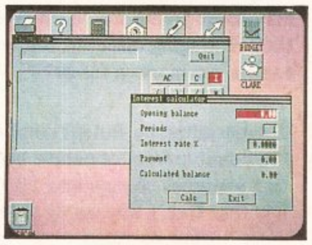
Home Accounts 2

the best gets better...

When Home Accounts was launched four years ago we had just one goal—to create the best home finance program. Over 30,000 of you agreed with us and purchased Home Accounts, not only for use in the home, but also for business, clubs and charities.

It seemed like a good idea to let you tell us exactly what to put into Home Accounts2®

Which you did.



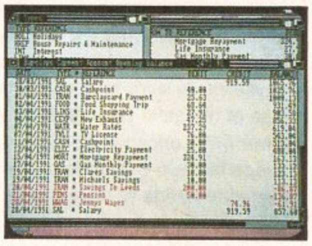
Some of you didn't like the restrictions on the number of income accounts, expenditure types, and transactions. So we removed them.

Some of you wanted more graphics, so we added pie charts, scatter and line graphs. We thought we'd better smarten up the bar graphs, so we added 3D effects, stacking and overlaying, and we made sure you can print them.

Many of you wanted to calculate mortgage rate changes, loan repayments, retirement planning and so on. So we added a pop-up calculator and interest calculator. There's also an option to take account of inflation.

Since nearly half of you use Home Accounts for small business bookkeeping, we added options for VAT and business style reports.

Then, our technical people added a little . . .

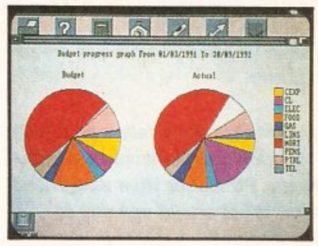


Investment accounts, net worth statement, password, cheque numbering, custom reports, flexible year period. And (to save you disturbing them on our support hotline) an on-line help system, should you need it.

They also added our acclaimed *Human Interface Protocol,*(TM) which first appeared in Wordworth® As you can see, it sets a new standard in speed, style and elegance for Workbench. (It also contains a screen saver, *Playtime* games and a few other goodies.)

Amiga Format said, "Digita have made great efforts to listen to their customer comments and the result is a package which will suit any household. Everything the home user needs has been included—and more".

Home Accounts2 is written by Digita® Which means you'll be using a program designed for the way British finances work, and you'll know where to come for professional support.



The only way you can really appreciate Home Accounts2 is to use it. Phone 0395 270273 for more information or, write to Digita, FREEPOST, Exmouth EX8 2YZ.

Home Accounts2 costs £54.99, which includes VAT, postage and packing; and when purchased from Digita, comes with a 7 days money-back guarantee.

If you already own a home finance program, for a limited period only, you can trade-up for just £29.99 by returning your original disks to Digita with your order.

Amiga Computing concluded, "A completely functional, very useful and amazingly easy program to use. If you're a wary newcomer to accounts packages then cast off your doubts and splash out on Home Accounts2."



As it turned out, listening to Home Accounts users was a pretty good way to write software.

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Home Accounts2 is available to the trade through Columbus, Gem, HB Marketing, IBD, Lazer, Leisuresoft, Precision and SDL.

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Talking Shop with the

'There's no



Kelly Sumner, obviously pleased at his recent promotion to Commodore UK's managing director. But what has he got in store for us?

How does it feel to be Managing Director of Commodore UK?

It feels good. It was an ambition. It's probably most people's ambition to reach the top of their company. It's taken me 13 years to achieve it and it feels good.

What, if any changes, will we be seeing in Commodore UK?

I'm not sure if you're going to see any great changes. If anything, Commodore is going to be a bit more focused on the Amiga line of product, because obviously that's our bread and butter.

Now that PCs have fallen so low in price, many people would consider buying a PC rather than a high end Amiga. What would you say to those people?

We've always got plans to bring in new products and new specifications of product. You haven't seen a great deal from us in real terms because obviously it takes a lot of time to design an Amiga chip set. But yes we have got plans to increase the power of the specification of the Amiga. I think that an Amiga still offers certain people much more than a PC would in certain areas.

If they really just want to do the boring stuff, then they're probably better off buying a Commodore PC, but if they want to do a little bit more and they want DOS compatibility then there's really only one choice, which is the A2000 or A3000. Most people, I think, feel that the Amiga is a far more friendly environment than, say, a 386SX20, even with Windows.

The Amiga is still a very competitive product – even with 386SXs prices down to £799 or £899 ex VAT – you have A1500s selling at £599 and the wealth of productivity and entertainment software is much more on an Amiga than a PC.

Atari is rumoured to be planning the Falcon, a 68030-based machine capable of displaying 32,000 colours and playing 10 channel CD-quality sound which it hopes to sell for £550. How can the Amiga hope to compete with this?

First of all we've got to see it. With no disrespect to any of our competitors, I can tell you wonderful things about wonderful products, but until they come on the shelves it's not reality. I can talk about 16 million colours and this, that and the other, but what's the point because they're not on the shelf at the moment? I would say that, like Atari, we are in continual development of machines. Unlike Atari, we aren't willing to talk about the machines before they become reality, because things can happen, time can lapse in development. It doesn't always go as smoothly as you would like, especially if you design a machine with a chip set which is meant to be as compatible as possible with the existing range – it takes quite a lot of time and effort. We just don't feel that we need to start talking about machines that are going to come down the line – we're not in the situation where our machines aren't selling effectively.



The top of the range 68030-based Amiga 3000 – it's good, but not that good. Perhaps a faster machine with better graphics is needed?

We'd rather say buy what we've got now; in a years time it may be entirely different. But let's not dangle the carrot in front of people because that year may change into 18 months. That's why we try to keep it quiet. I know everyone wants to write about new products and new this and that, but it's not fair on the end users to tell them about all these wonderful things that may never come about. I've seen loads of products in Commodore that have just never come to the market.

The A3000 has recently undergone a large price drop* ('price position, price position,' *jokes Sumner*). *We've heard rumours that the A600 is about to do the same, falling under £300.

What we did originally with the A3000 was stuff it full of lots of memory and put this, that and the other in there. What we've effectively done is pull a lot of that out and said 'if you really want to get into this type of machine you can have a lot lower entry price point.' Not everyone needs to have 6 or 8Mb of RAM, not everyone needs to have maybe *Scala* or whatever. Not everyone has got £3000 to buy an A3000, but they may have £1500 and they may want to build the product up over a period of time.

So what about the A600? Is there any truth to the price rumours?

There are always rumours. I think our statement is exactly the same as on the A3000. We will sell the product at the price that we believe will make it competitive within the market place. Now, if it's £399 it's £399, if it's £499 it's £499, if it's £299 it's £299, whatever the price is. It's a tough economy out there, and we can't sit in our ivory towers and ignore the fact that we're competing for everybody's money.

We're not particularly competing against Sega or Nintendo or Atari or whoever, we're competing against the money that may be spent on a holiday or a TV or a video. We're competing for people's cash.

Obviously we've got to make our product an exciting proposition and if it's a question of putting more software with it or cutting the price, we will obviously look at that.

How many CDTVs have you sold?

It's about 15,000. The trade-in seems to have had a tremendous effect. You can buy a CDTV at £499 as a stand-alone item, or you can buy it for £599 with a keyboard, disk drive and mouse, or, if you're an A500 user – doesn't matter what kind of A500; it could be a 1.2 – you can trade your A500 in and get a CDTV for £399. So you save £200.

The great thing is, if you've had your Amiga for say four years, which quite a few thousand people have, that you're getting a disk drive with CDTV and so your software will be compatible, and you're obviously getting a new warranty on your product. You get additional things like MIDI in MIDI out, plus the CD-ROM drive. So it's quite a good deal.

Are you confident of CDTV's success now that Philips CD-I is on the streets with a much bigger marketing budget?

I think I'm confident of us winning the CD war against, say, Philips, because quite frankly the people who

How far away is the replacement for the A2000?'

Main Man

In his first interview since taking over as the new MD of Commodore UK, Kelly Sumner talks to Cliff Ramshaw about the future of the Amiga range and why the A600 is its vanguard...

way we're going to allow our user base to suffer'

are buying the CD technology at the moment are computer literate people, which is our market-place; but I think it's going to take a huge amount of money to try to educate the masses on why they should spend so much more on buying this thing called CD-I or CDTV.

We've got to address our population, which Philips hasn't got. So certainly in the short term I don't think we have a particular problem. Who knows what's going to happen in two or three years time?

How many do you expect to sell between now and Christmas?
About 50,000.

Do you plan on releasing a CD-ROM drive for the A1500/A2000 range?
It's certainly been talked about. I think that it probably is a likelihood, but I don't think you'll see it much before Christmas.

When will the A570 be in the shops?
This month (July).

Regarding the A500 Plus, our reader response to its demise has been pretty negative.
I thought you did quite a good hatchet job.

Well, the reaction was pretty bad.
Yes, I was speaking to someone in the trade about it. What we can't tell people is what our overall game plan is. And they get very emotional about this product called the A500 that they've had and they've got very close to, and rightly so.

But the A600 is the first of the new machines that will be coming out. If you look at it, it's got surface mount technology, it takes PCMCIA cards and all that kind of business. And who says in maybe a year's time they're going to look at it and say 'well, Christ, actually Commodore did do the right thing.' It doesn't happen overnight, you can't suddenly release a whole plethora of machines, and people can't really take advantage of the PCMCIA overnight.

But that machine, the A600, is a better deal than the A500. The manufacture and reliability is much much, much better. We've shipped something like 65,000 A600s to the trade since April. Out of all of the ones that have been sold, we haven't had one PCB failure. Not one. Now that is quite incredible.

The other thing is that with the advent of the PCMCIA slot it will make it a lot easier for people to expand. They've got this thing about the DMA bus which is all singing and dancing and wonderful, but quite frankly that's not true. At the present time there are more people who are writing for the PCMCIA slot than have ever written for the DMA bus. There's 70 people producing cards at the moment that run on the A600.

What we've done is, we've gone out and taken a standard architecture that will give people a better choice and make it easier for people to develop for that card. Now our theory is that, for instance, if you buy an A600 you don't have to go out and buy a traditional hard disk and have to open your machine and put it in and all that business, you go out and buy a 20Mb, 40Mb, 60Mb card. Or you go and buy flash RAM or whatever.

> **"A PCMCIA card adaptor for the A500 is the wise way to go"**

One of the reactions people had was: 'Oh, what about my peripherals etc'; but in the long term PCMCIA will be a godsend because it will be so much cheaper.



The A600 may have disappointed many but, seen as the first of a new wave of Amigas, it becomes a more tantalising proposition

Did you expect the bad reaction over the A500 Plus?
I think in real terms we knew there was going to be a reaction. It's the A500 series rather than just the A500 Plus. You've got to think that we sold 1.25 million machines. It's been very close to either end users or retailers for a very long time. And people don't like or accept change very easily. I can well remember when Ford brought out the Sierra. People hated it, but now no-one says anything about it – it's totally accepted. They took a radical step, which is what we've done.

It's the same with the Amiga; it will take a little time for people to accept. But for the end user, the machine has got to be better. Take on-site maintenance.

Would you like to take the opportunity to reassure the A500 owners that they're not in possession of a dinosaur?
No they're not, absolutely true, because the whole thing about the Amiga technology was that we would try and make the people's machine grow as we released new products. Now that obviously isn't always 100% available because things do change. But if you bought a 1.2 Amiga, you could have upgraded it to 1.3, and you could have upgraded it to 2.04. We'll still carry on bringing out peripherals such as printers, monitors, drives and RAM.

There's no way that we're going to allow our user base to suffer. But what we've done is taken advantage of new technology – surface mount and the card slot.

Do you know of any third party developers seeking to make a PCMCIA adaptor for the A500?
There are a number of people rumoured to be. I've heard three people talking about it. I actually think that it's the wise way to go, really and truthfully. To make that adaptor wouldn't be very expensive. Technology-wise it's quite inexpensive. If you're an A500 user and you haven't got a hard disk or whatever, it's a tremendous way to expand.

Do you know of any developers intending to produce serious software for the A600's slot?
There's a number of people looking at that at the moment. I think, quite frankly, that it's going to be a good six months before you see that, for a number of reasons: the cards are still a little bit expensive but obviously the price is reducing dramatically as more people get into the market. But there are quite a number of people, particularly in the States, who are talking about that at the moment.

How far away is a replacement for the A2000?
About four months.

– 'About 4 months...'

Can you give us any details?
No. The range that we had last year, apart from the A3000 which we've re-positioned so far as pricing is concerned, is going to be quite different to the range we will see at the end of this year. We are trying to make sure that we have very competitive products. But I don't want to talk about what's going to be

in there. What I would say is that if people are looking for a machine that is as inexpensive as the A1500, they may well be disappointed, because the new machine will have higher specifications and obviously that does carry a cost.

Is there any truth to the rumours of an 'AA' chip set?
Well, if you think about it, the first chip that we ever released was the 'single A', and then we had the ECS which is the 'A Plus' chip set, if you like, so I suppose a 'double A' wouldn't be out of the question.

All I would say again is that we realise that we have to keep ahead of the game. Whether it's a 'double A' whether it's an 'A Plus' or whatever, it wouldn't be out of the question to see Commodore releasing new chip sets, because that's our game. If we're to stay ahead of the competition, we have to do something.

Just by dropping a 68020 or 030 in there – that's great but that really just gives you speed; it doesn't increase the graphics power. It would be silly to say that we're not thinking about other chip sets, but a chip set for an Amiga takes a very long time to develop if we're to remain compatible with what's already out



Faithful but ageing, the A2000 needs a revamp. Does the A800 detailed below fit the bill?

there. And I think that it would be wrong for Commodore to release a new chip set that hasn't got a high degree of compatibility, because obviously people may want to buy the new chip set and already have a software base. I'm not going to say that everything will always run on a new chip set, but we're after high degrees of compatibility, which takes longer than just producing something from scratch.

There's been a pirate beta test version of Kickstart 3 knocking around on some bulletin boards. When will we see this as a legal product?
I don't know. We have just released 2.04 into all our machines; so I think it will be a little while. There were rumours for probably 18 months or two years about version 2 – I think as soon as we released 1.3, people were talking about 2. So, it would be quite sensible to think there was going to be some delay there.

Is there anything else you would like to tell our readers?
I would say to the readers that obviously if they've got an A500 I think that the A600 isn't necessarily the right way to go – maybe an A3000 would be – because the A600 doesn't offer that much more to someone who's already got a 500.

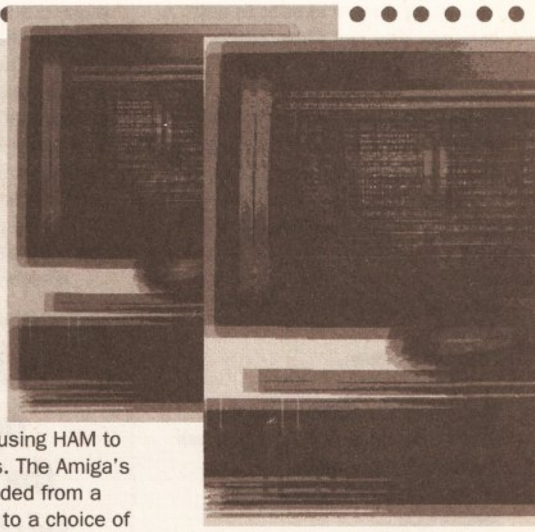
Also they should think about the reasons why we implement new things such as the PCMCIA smart card – that in time will be one of the biggest bonuses for the Amiga because it will make us a standard within the industry; that means that they're going to be able to buy add-ons and accessories a great deal cheaper than they probably could do today. It won't happen overnight, but it will be there. It's all well and good saying the DMA bus was good, but we were the only people producing DMA product. That obviously made it expensive to start with. But with 70 people at the moment producing PCMCIA cards, that product's going to become very inexpensive in time. And it's neat – you've got removable hard disks there haven't you?

You haven't asked me about the Amiga 800.

Well, we've heard rumours of it.
I was just going to say, I don't know of a product called the Amiga 800.

HOT NEW AMIGAS

...or those two new machines Kelly Sumner wasn't able to comment on



Further details of two new Amigas from Commodore have emerged.

The information comes from a message posted on Usenet, the international electronic mail network, and is allegedly posted by a third party developer for Commodore US which is beta testing the products. Two new Amigas are detailed, the Amiga 4000 and the Amiga 'Classic', otherwise known as the A800.

The information seems plausible, but we cannot verify it because the machines are covered by Non-Disclosure Agreements. It is certain though that new Amigas are expected.

The A4000, a machine to be introduced above the A3000, is said to be based around Motorola's latest central processing unit, the 68040. Along with the other new machine, it boasts new graphics and sound chips, dubbed the 'AA' chip set, and version 2.1 of Kickstart, also currently in beta test.

Expandable to 64Mb of Fast RAM and 16Mb of Chip RAM (memory accessible by the graphics and sound chips), the A4000 comes with 16Mb Fast RAM, 4Mb Chip RAM and a 105Mb Quantum hard disk. Its floppy disk is a high density device (giving twice the capacity of a normal floppy) but, unlike some high density floppy drives available with the A3000, this is not achieved by cutting its speed.

The other machine is set to replace the out-dated A1500/A2000 range. Based on a 16MHz 68030 processor, it has variously been called the A800 or the Classic, but given that 'Classic' is registered to Apple and Kelly Sumner has denied all knowledge of an A800, neither of these names are to be taken too literally. Like the A4000, it includes the 'AA' chip set and Kickstart 2.1. Its memory is expandable to 16Mb Fast RAM and 4Mb Chip RAM. It has the same high density floppy drive as the A4000 and a 52Mb hard disk.

Both machines utilise the Zorro III expansion slots as found on the A3000, but the machine known as the A800, housed in a shallow pizza-box style case, has more limited expansion capabilities.

NEW 'AA' CHIPS

The new 'AA' chip set, as well as adding new graphics features, retains close compatibility with the existing ECS of the A500 Plus, A600 and A3000. A number of new graphics modes are supported: 800x300 and 800x600 (interlaced) with up to 256 colours on screen at once with no restrictions; and 1280x480 and 1280x960 (interlaced) using HAM to give up to 4096 colours. The Amiga's palette has been expanded from a choice of 4096 colours to a choice of 16.7 million. In addition, a SuperHAM mode has been included which enables all of these colours to be used at once in the standard Amiga resolutions with restrictions similar to the current HAM mode. Screens in this mode may be animated at up to 30 frames per sec.

The Amiga's hardware sprites have been improved such that they can now consist of up to 16 colours, and be a maximum of 64 pixels wide. Their height is unrestricted. Flicker is removed from all interlaced modes by means of a built-in de-interlacer chip.

The new Amigas have been beefed up on the sound front, too. They both come with a built-in digitiser which will sample sounds with 8-bit resolution at 22KHz. Sound output is even more impressive. Four 16-bit channels are provided which are capable of reproducing frequencies of up to 56KHz. These channels can be used to emulate eight 8-bit channels at 56KHz or 16 8-bit channels at 28KHz.

A new Motorola Digital Signal Processor chip is also believed to be included with both models – this is a microprocessor in its own right, working alongside the central processor. It is a 24-bit device clocked at 27MHz that can be programmed to perform complex sound processing operations at high speed. These could include sophisticated filtering and sound manipulation effects.

As well as the standard Amiga ports, the new machines also have a microphone port, a MIDI port and a PCMCIA credit card slot. No prices or details of availability are known, except that the cheaper of the two will come in at a price above that of the A1500, and that at least one of them is due in four months.

Talking Shop

A600 FIGHTS BACK

Last month we devoted all of *Talking Shop* to the flood of letters commenting on Commodore's decision to cease production of the A500 range. The verdict was, to say the least, highly critical – much of the flak targetted at the Amiga A600. Which, as you might expect, provoked a number of enraged A600 owners to set the record straight...

OH BRAINLESS ONES

I am shocked at this childish playground attitude adopted by both you and your readers about the arrival of the A600.

I am a *very* proud owner of one and think this is a remarkable computer! The A600 is the first computer I have bought, having arrived at this decision to buy one because my SEGA console is not what I want anymore – and I love it!

It's more compact than the bulky, slab-like 500, and looks more attractive! Granted, its arrival is a bit obsolete, but don't knock it until you've tried it! I totally resent the remarks made by some of your readers about its size and its seemingly "console" like approach.

These comments come from a bunch of closed-minded misnomatics who cannot swallow the fact that the A500 is history and that the light isn't in their ball court any more!

You lose, oh brainless ones! Long live the A600.

Gary Entwistle
Tonbridge

Hmmm, I think 'childish playground attitude' is a bit strong there, Gary – we adopted an even handed response to the story in our news reporting and in these letters pages. But many A500 owners were somewhat peeved and said so in no uncertain terms. Now, I don't want to get drawn into a My-Amiga-is-better-than-your-Amiga type argument here, but hey! loosen up will ya! I'm sure the A600 has got a helluva lot going for it. As you say though, the err... light... is in its err... ball court.

HYSTERICAL

I read with amazement the hysterical reactions of A500 owners to the discontinuation of their machine in last month's *Amiga Shopper*. In particular I was surprised at Margaret Haedicke's assessment that the A600 is "mainly for games" and Mr Scott's view that the A600 was unexpandable.

What utter rubbish! Please explain to me how a machine with exactly the same processor and graphic specifications as the A500, but with the added advantage of a built-in hard drive interface and TV modulator, can in any way be described as a games machine?

The almost crazed and illogical ravings that I was forced to read in your magazine really made little sense. The authors were obviously just jealous that now people can go out and buy an A600 for the same price as an A500 and revel in the advantages of hard drive interface, portability and incredible reliability that the new machine offers.

Certainly to describe the A600 as a games machine or as inferior to the A500 is showing crassness not worthy of an Amiga owner!

In my mind the A600 is a worthy entry level machine offering a cheap and easy upgrade path to hard drive ownership whilst still having two expansion slots like the original A500.

Although I now have a B2000, I did own an A500 for many years and I would have much preferred an A600 to my A500 – the AT hard drives it uses can be picked up for as little as £100 and the saving in desk space is phenomenal.

As far as I can see, the A600 is every bit as expandable as the old A500 as no doubt accelerator boards, 8Mb RAM expansions etc will soon be designed to fit on the PCMIA slot. The A600 is the perfect machine for home and hobbyist use; I am only disappointed that it was not released several years ago.

Certainly *no* other computer can offer such power at such a low price. Don't be fooled by statistics, my 7MHz B2000 can stuff a friend's 16MHz 286 PC out of sight on graphics manipulation and sound.

Stick with the Amiga and Commodore! The new range of Amigas and the new improved graphics and sound which are on the way will certainly be something worth beating the PC owning world with!

> *"The crazed and illogical ravings I was forced to read really made little sense"*

Daniel Brookings
Great Yarmouth

Yes, some good points there Daniel. The main criticism levelled at the A600 is its alleged lack of expandability. As such it's seen as a games machine.

But the PCMIA memory card slot is indeed there for the taking and as CBM's new UK MD, Kelly Sumner, assures us in the interview on page 9, there are loads of third party developers busily hacking away at it at this very moment.

Like so many new advances though, it's a question of Time Will Tell. And, forgive me for swearing, but Atari has a new £399 super ST coming out this autumn which could very easily take sales away from the A600. The quicker the A800's on the street, the better.

A600 EXCELLENCE

I have observed many reactions to the release of the A600 and the demise of the A500 and most think that this is a bad move by CBM.

I, however, think it is an excellent move.

The Big C has already announced that it intends to release new Amigas soon – as the A600 is just a taster of things to come.

OK, so the A600 will be incompatible with a lot of hardware, but before people go jumping to conclusions and start asking where this leaves users who wish to expand their machines, consider the following...

The majority of people who will want to purchase the A600 are people who not only want to play games but also to use it to type out the odd letter.

If a user wants to do any more than this then they would be better off purchasing a semi-professional type machine like the A1500/A2000 or the much rumoured A800 when Commodore releases it.

The A600 is a step forward for the Amiga and is perfectly designed hardware wise – if you want to load the Amiga with accelerators and the like then buy a machine that is designed to do that.

Maybe one of Commodore's new machines will be a portable; the miniaturisation employed in the A600 sure makes this possible.

Existing A500 owners must not despair, the A600 will ensure the future of the Amiga in the 90s and beyond.

Philip Chung
Cheltenham

Yes, and in your last paragraph you hit the nail firmly on the head. Don't think there's much chance of a portable though.

A600 NEGATIVITY

I really can't understand why everyone is so negative about the new A600. The A600 is quite simply a recased A500 Plus but with the bonus that you can now have a hard drive, for the price of an external drive and a half meg upgrade, just eighty pounds! So you now don't have to pay the ridiculous price of three hundred pounds for the simplest hard drive.

Your average Amiga owner aspires to a hard drive and a few megs of extra memory at maximum. You can have all of these things on an A600 for a lot less dosh than an A500, this is a *fact*. The few things

that you cannot do with an A600 are exclusive to say the least, when you consider the number of people who can afford to buy accelerator cards etc these days.

The simple fact is that the A600 is here to stay and all the whingeing in the world from the techies who mourn the loss of their best friend will not bring back the over-sized A500.

I had an A500 for three years and loved the machine but time moves on, and in my opinion the A600 is much more desirable than the chunky old faithful and also more reliable.

The simple fact is that the *Real 3D* images I now produce on an A600 look just as good as the ones produced on an A500. But now I can save them to my hard drive!

It is just a pity that *Amiga Shopper* couldn't take a positive attitude and welcome the A600 for what it is, the best cheap home computer on the market, which will

"The A600 is much more desirable than the chunky old faithful"

give you access to the wonders of DTP, 3D modelling, word processing (and perhaps even the odd game) at a reasonable price with great reliability.

Steve Summerskill
Wakefield

Fair enough. I honestly don't think you can accuse us of taking a negative attitude though, Steve. Maybe we didn't go over the top about the arrival of the A600 but then I don't feel there's a great deal to go over the top about. It's a neat machine, sure – but nothing to knock your socks off. Now that's not being negative – being negative is me printing in a national magazine "The A600 is a waste of space". Which it ain't.

A BUNCH OF LEMMINGS

The *Talking Shop* column in issue 16 about the A600 and Commodore in general really got on my ribs. Just because Commodore brings out the A600 and stops producing the A500 everyone seems to think it is the end of the Amiga.

So many of the letters I have read gave me the impression that the writer was going to do a Lemming!!

Anyone remember the Plus 4, C16 and CBM 128? Total flops brought out by Commodore as the next step forward. You have to remember that with the bad you get the good. The Vic 20, the CBM 64, brilliant for its time, and now the Amiga. The Amiga was such a major advancement from the CBM 64, but the A600 is not the next step up. It is not technically superior.

The A500 has not yet reached its peak, there are a good 5-10 years left in the old girl yet.

You don't think the third party developers are going to chuck all their A500 goodies and start producing A600-only goods, when there must be less than 10,000 A600s in the UK homes, if that.

One other thing, why should A500 users worry whether the A600 is upgradable or not, if someone wants to buy an upgradable machine, then they won't buy the A600, which will show in the numbers sold, and make Commodore realise what a mistake it has made. All you readers stop fretting, you already *own* a good, solid, upgradable machine, why worry about a machine you don't like anyway?

Also what is this obsession with chucking the Amiga and getting a PC? You need at least £800 for a decent bog-standard machine.

JS Smith
Sheffield

I think eventually the A600 will become an upgradable machine. There's one line of argument, ably presented in the next letter funnily enough, which claims that the A500 range was scrapped precisely because of its upgradability. Sales of A1500/2000 and 3000s were suffering as a result, as were Commodore's attempts to market its own expansions and peripherals. But it's also got a lot to do with cheaper construction costs and greater reliability.

Expandability will come for the A600 though because there's always a demand for maximising what you've already got without splashing out on a brand new machine. That's what propels the PC market and presumably that's why a few readers thought the PC was a more future-proof option.

UPGRADE CONSPIRACY

I am writing in reference to Commodore's "new baby", the A600. It's got A500 owners everywhere paranoid that the third-party developers will just turn their backs on them as if the mighty A500 never existed.

As for becoming obsolete, it *is* still an Amiga after all, with the same software base as the 2000 and 3000, and that's not going to change much for this new computer.

Commodore's marketing strategy is obvious; keep the games players with the A600 and force the hobbyists and "serious" users into buying a bigger, more expandable machine. This has always been their game plan but the A500 proved to be just as expandable as any other Amiga. There are a wide variety of peripherals for the A500; high power accelerators, 24-bit graphics boards, 10Mb of RAM, anything a serious user would demand from a computing system.

I think in the eyes of Commodore it became *too* easy to transform an A500 into a beast more powerful than the top-of-the-line 3000. Surface Mount Technology will take care of that, and then customers will have to get a bigger Amiga, or a big ugly PC.

Commodore will have to develop a more advanced middle-range machine if it doesn't want to be alienated from the "serious market" of the PC and Macintosh, especially with the current pricing trend.

Amigas are no longer the great bargain they used to be, and the new range will stand or fall on its own merits, not a cheap price tag. This can be done, but the Amiga is going to have to evolve into a more powerful machine, sporting a 68020 as standard, and a 040 and *at least* true 12-bit graphics for the top of the range.

As for existing Amiga owners, I say only this. Don't worry about your computer becoming obsolete. Developers will be making peripherals for the A500 for a long time to come and Commodore is just about to release the A570 CD-ROM. It's the A600 the third parties might not support. Anyway, if your system does what you bought it for, what's the problem?

PB Stanley
Stamford, Lincs

I think the Amiga is already alienated from the serious market if you define this as being anything other than video and 24-bit graphics work. While Amigas are clearly capable of handling serious applications, they're not perceived as anything more than souped-up consoles by the business user. Yet with the A3000 you have a machine that'll give most Macs and PCs a run for their money. There's one way this can be rectified and that's for Commodore to start promoting it as a serious machine range. Full stop.

YUPPIE GEAR?

In his August AmigaDOS column, Mark Smiddy asks "Does anyone out there still use AmigaDOS 1.3?" Well yes actually, chum. Gosh it is a "nightmare" – that blue screen and nasty topaz font mocking my lower status in life. All those bugs! Oh, it's so slow and horrible! Heck, I can barely show my face in public without being pointed out as a 1.3 throwback.

But there's little I can do to improve my predicament. I can't afford the £80 upgrade to Snob-bench 2.0, being a student rather than a highly paid, fantastically rich computer journalist.

Looks like I'm stuck with this archaic 1.3 thing that I and several million other Amiga owners have been using for years now.

"It became too easy to transform a 500 into a beast more powerful than the 3000"

We'd all like to own 52Mb hard drives, high-res monitors, ECS and the latest versions of software; versions that your writers urge us to buy as they are a "vast improvement" over the previous releases that they led us to believe were perfectly fine until recently.

Frankly I'd rather *Shopper* devoted a little more space to telling me how to make use of what I've got rather than suggesting 1,001 different ways to spend money I haven't got.

I appreciate that Mr Smiddy did, in fact, devote his column to updating a previous program for 1.3 DOS, but he could have done it without the condescending introductory paragraph.

Please inform your staff that many of us are operating on far less than what they consider to be the minimum requirement for an Amiga system.

Ade Rixon
Warrington

We try and draw a balance which is more heavily weighted to tips, advice and tutorials than new product reviews, but we can't ignore advances. However, you'll be pleased to know that next ish we're bringing you a 32 page *Amiga Answers Special* designed to help you get more from your machine.

NO THIN ENDS HERE

In issue 15 page 56 Mark Smiddy devoted almost a whole column to a

I CAN LAUGH ABOUT IT NOW...

The following might save your readers some trouble. At one point I found that the internal disk drive in my Amiga was scratching and destroying disks. I removed, cleaned and replaced the recording head. Realignment was a bit of a fiddle but for a long time I kept having to repeat the realignment at frequent intervals, although there was no obvious fault. – it became such a nuisance that I was on the point of buying a replacement drive.

To cut a long story short, I discovered that the trouble was caused by magnetic interference from the monitor (whether from the loudspeaker magnets or the tube field coils, I do not know). The internal magnetic shield of the computer was not totally effective.

The cure: a steel biscuit tin lid is now attached to the underside of the shelf which supports the monitor above the right hand side of the computer. This has proved completely effective.

H Owens

Thanks there, H – send me your address and I'll send you a fiver. As I will to anyone else who sends in a published solution to: 'I Can Laugh About It Now, Amiga Shopper, 30, Monmouth St, Bath BA1 2BW.

games question – not much in so many pages, I grant you, but is this the thin end of the wedge? One this month, five the next!

PJ George
Loughton, Essex

In fact it's one this month – check out page 120 – and then erm... none for the rest of eternity. Now can we leave poor Mark alone?

PD RIP OFF FILTH

I am a middle-aged newcomer to computing and I wish to start by telling you that, although I have had my Amiga for only a little more than a year and had to start to learn about computers right from scratch, I feel that I am doing quite well. I use several of the music programs and am finding this of great assistance in the line of business I have chosen following my retirement after 35 years in the police service.

I am a regular reader of *Amiga Shopper* and I found the article by Jason Holborn in the July issue regarding PD quite interesting.

However, Jason omitted to mention probably the most pertinent point regarding PD houses. He did not say that there is a positive chance that some of your readers who send their orders and their money to some of the PD houses who advertise in your magazine will not receive a reply, nor their disks, nor their money back.

It goes without saying that many of the 'houses' give an excellent service and, in one instance, 6 disks arrived at my address within 36 hours of my posting the order. However, unfortunately, there are those who do not supply the goods, nor do they return the cheque. They cash it instead! I have been defrauded three times. For various reasons I'm not prepared to name the 'houses' who have failed in their commitment and, in doing so, have indirectly discredited your magazine.

Another point Jason failed to mention was the fact that there is an unnecessary amount of obscene and other unpleasant language used on some of the PD disks. I don't suppose I need to go into detail but I will refer to one particular music disk I bought. Being new to it all, and self-taught, I obviously make many mistakes when trying to run my software. On one of these disks, each time I do something wrong, a rather disgusting message flashes up saying 'F... Off, Lamer' etc. Is there any need for this?

What sort of people are these faceless perverts who thrill to using this language, knowing full well that the persons most likely to be confronted with it are young persons and children?

I realise, of course, that there is nothing you can do about the way sick programmers write their materials, nor is there much you can do about the contents of disks sold by the PD houses. However, I would like to know what sort of scrutiny you subject your advertisers to before accepting their money for advertising.

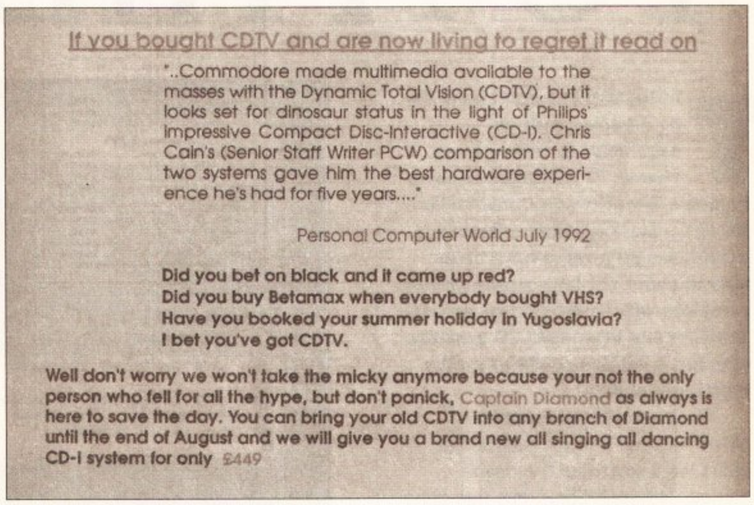
Are any steps taken to check out the bona fides of would-be advertisers, or can anyone who might use a garden shed or a spare room in a lodging-house as a temporary address set up a business as, and advertise as, a PD house?

I am sure most of your 45,209 readers would be delighted to know the answers of these questions.

JD Martin
Hull

Well, first of all, I'm sorry to hear you've been subjected to abuse and ripped off on a number of occasions. Unfortunately, in the first instance, we have to take adverts placed with us on the basis of trust. Other than the normal credit checks we can't assess a company's morality. It's only when we receive complaints from individuals who've been mistreated that we prevent that company from appearing in our pages. And then again, we can't rely on isolated incidents – there has to be a number of complaints from people over a period of time so as to make sure we're just not acting on someone's private vendetta or a temporary mail order processing problem.

So I'm afraid it's a difficult judgment to make – after all, what's the alternative? – no ads from small companies? Like all walks in life, there's always a small minority who spoil it for everybody. So, I guess you just have to make sure you deal with reputable suppliers...


If you bought CDTV and are now living to regret it read on

"..Commodore made multimedia available to the masses with the Dynamic Total Vision (CDTV), but it looks set for dinosaur status in the light of Philips' impressive Compact Disc-Interactive (CD-I). Chris Cain's (Senior Staff Writer PCW) comparison of the two systems gave him the best hardware experience he's had for five years...."

Personal Computer World July 1992

Did you bet on black and it came up red?
Did you buy Betamax when everybody bought VHS?
Have you booked your summer holiday in Yugoslavia?
I bet you've got CDTV.

Well don't worry we won't take the micky anymore because your not the only person who fell for all the hype, but don't panick, Captain Diamond as always is here to save the day. You can bring your old CDTV into any branch of Diamond until the end of August and we will give you a brand new all singing all dancing CD-I system for only £449

Diamond Computer Systems' advert in last month's *Amiga Shopper* came as something of an insult to Mark Smith and Graham Dixon. Now who was it who said that ads were boring? (We'll have the dosh for the re-run too lads!)

DIAMOND CDs

May I for a brief moment leave the A500 Plus and bring your attention to another Commodore wonder – the CDTV. I own one of these machines and after reading the Diamond advert in your August 1992 edition on page 128 I was feeling rather ill. Could you write some kind of soothing words to restore my lost faith in the machine, if not I might just do something drastic like get CD-I instead.

Mark Smith
Liverpool

CDTV/CD-I

I was infuriated to read the Diamond computing advert in your last issue, about the CDTV and CD-I unit. The advert suggested that the CDTV was dead and that the owners of the machine should trade them in for a CD-I. I have had my CDTV for just two months and am amazed by it. I am writing this letter on the machine at the same time as listening to a music CD. Try doing that on the CD-I unit!

Secondly the CDTV has software unlike the CD-I. I have seen the first batch of releases on the machine and it really is a joke. If you did a comparison of the worst CDTV title compared to the best CD-I title, you would see what I am getting at. Now on to the writer of the advert. If he had taken time to actually use the CDTV and some research, he would know that the machine is not dead and that most of the owners are very pleased with the machine and that good software was starting to appear. *Sim City* is absolutely amazing. It has four full sound tracks on it. I have also had a look at the *Trivial Pursuit* game. This is one that interests me because of the size of it. It comprises of two CDs. That's over a gigabyte of information!

If I were the editor of your magazine I would drop the Diamond advert because it doesn't do much for sales of your magazine.

Graham J Dix
High Wycombe

Yes, bit of a naughty one that ad, wasn't it? But only if you believe there's any truth in the assertion that CD-I is better than CDTV. For an Amiga owner there's no choice really – more and more Amiga software will be appearing on CDTV.

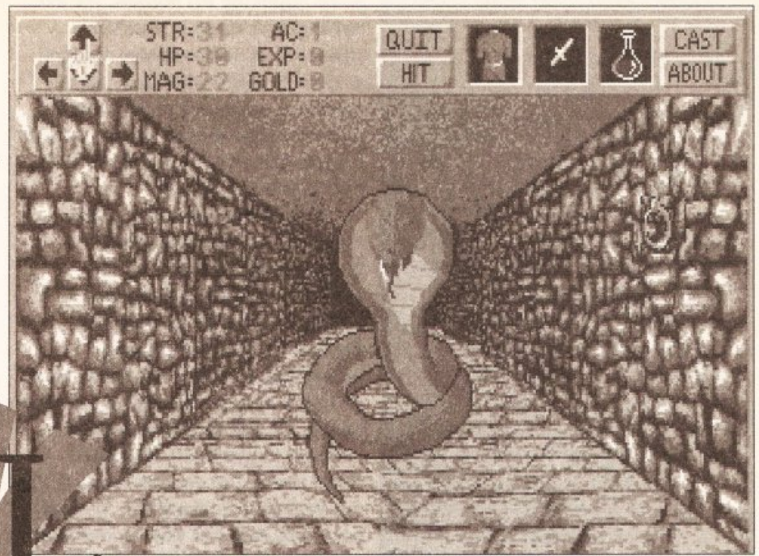
Actually, in this respect, Commodore is offering a better deal than Diamond – trade in your A500 for a CDTV with keyboard and disk drive for only £399. Diamond might be better off trying to beat that. Bet it can't...

YOU GOT A VIEW? WELL SEND IT TO:

Talking Shop, Amiga Shopper, 30 Monmouth St, Bath BA1 2BW. Go on – join the Amiga's liveliest letters pages!

Jason Holborn ventures forth into the world of dungeons, dragons and fair maidens with Visionary, Aegis' new adventure game authoring system. Could you create the next bestseller?

A VIEW TO A KILL



This *Dungeon Master* clone serves as a perfect example of what is possible with *Visionary*. It's just a shame that it takes so much work to achieve this sort of result!

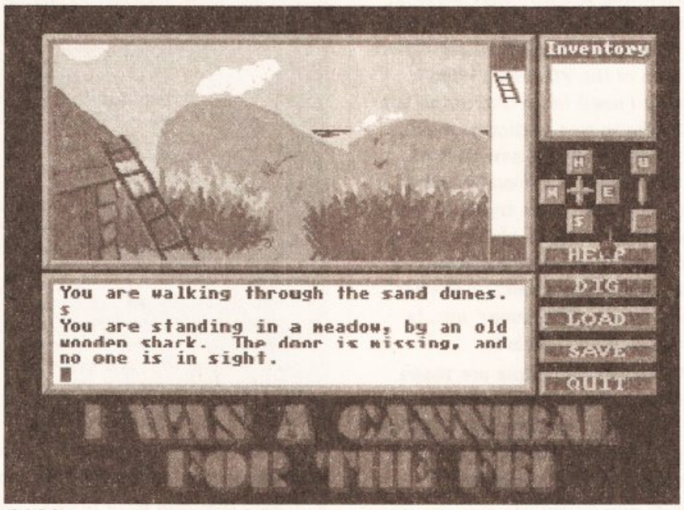
These days you don't have to be a genius with an assembler to write games. Thanks to packages such as Palace's *Shoot'em up Construction Kit* and – more recently – Domark's *3D Kit*, Amiga owners have been able to churn out fast arcade games complete with fancy sprites, smooth scrolling and even solid 3D graphics with not a single opcode or status register in sight.

The popularity of Europress' AMOS is proof enough that Amiga users want to create their own games. Although Europress has gone to great lengths to stress AMOS' other uses, it doesn't take a brain the size of a planet to realise the true nature of the beast. High speed hardware scrolling, copper rainbow effects, blitter objects and interrupt driven music are hardly the kind of facilities that your average spreadsheet programmer is ever going to need.

There's no doubting that arcade fanatics are certainly well served, but developers have sadly ignored the one type of game that arguably started the computer gaming craze in the first place – adventure games. Even Incentive's *GAC* (*Graphical Adventure Creator*) never quite made it to the Amiga despite the fact that Incentive converted it for just about every machine under the sun including the Amiga's closest cousin, the Atari ST. Shame on them!

INSTANT TALENT

Spotting an obvious gap in the market, Stateside developers Oxxi/Aegis have come up with the goods in the shape of *Visionary*, an adventure creator that Aegis claims will turn you into a top game developer overnight! Loading up the two demo games that are bundled with *Visionary* (one of which is a very good *Dungeon Master* clone), this claim certainly seems to be true. They are quite simply of commercial quality and as a yardstick of the program's capabilities, *Visionary* seems almost too good to be true.



***GAC* it may not be, but *Visionary* is capable of producing graphic adventure games which would have turned Infocom green with envy!**

All this power comes at a price, however. If you're expecting *Visionary* to be another *GAC*, then I'm afraid you're going to be disappointed. *Visionary* is actually a BASIC-like programming language which has been specifically designed to handle the task of writing adventure games.

So what's the point? I hear you ask. Sure, it could be argued that AMOS is just as qualified to handle adventure games, but what makes *Visionary* so special is that the heart of all adventure games, the parser, is built in to *Visionary* so you don't have to worry about coding your own. As a result, your adventure games will boast a parser that would have turned even Infocom (the masters of the adventure game genre) green with envy. Obviously *Visionary* allows you to modify it to suit your own particular needs, but it's nice to know that this all important routine is available 'off the shelf' so to speak.

SOURCEY DEVIL

The *Visionary* development system consists of two programs – VCOMP (the *Visionary* compiler) and VLINK (a dedicated linker). Both of these programs are Shell-based, so you're going to need a pretty good knowledge of AmigaDOS to get them running. To create an adventure, you must first produce a series of source files that are then passed to the *Visionary* compiler for compilation. If no errors are found (they usually are!), the object file generated by the compiler is then passed to the *Visionary* Linker which produces an executable which can be run independently of *Visionary*.

Visionary programs don't just consist of a single source file. Instead, each aspect of your game must be split into a strict series of separate files that define such things as the startup code, the map data and objects. Each of these files must follow strict filename conventions for the compiler to recognise them. If all the source files that are needed are not present, the *Visionary* compiler will take exception and throw your

JARGON BUSTING • JARGON BUSTI

Adventure Game – An adventure game is best viewed as a sort of interactive book whereby the player (*you*) makes the decisions which affect the outcome of the story. Traditional adventures were completely text based – instead of relying upon fancy graphics, the adventure weaved a yarn through the quality of its descriptions. The player interacted with the game by typing in English sentences ('attack editor with sharpened mouse', for example). Classic examples of the adventure game genre include *The Hobbit*, *The Pawn* and Infocom's tongue in cheek *Hitch Hiker's Guide to the Galaxy*.

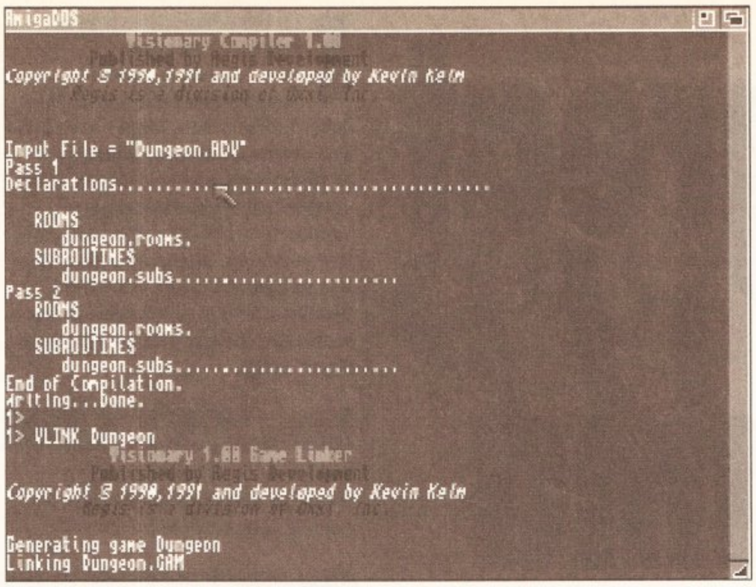
Parser – All adventure games that are played by entering English sentences via the keyboard ('Take apple', for example) share a common routine called a parser.
A parser is a routine which takes the string that the player enters and breaks it down into a series of commands and parameters that the game can act upon. In the example above, the parser would break the string 'Take Apple' down into one command and one parameter – 'Take' and 'Apple'.
Like a programming language (and indeed the English language), the

source files back at you.

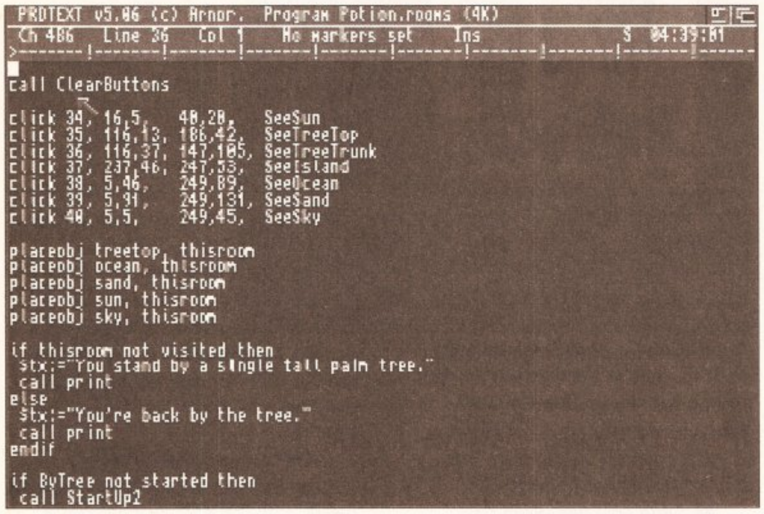
At its simplest, an adventure must contain at least two files – a rooms file (<filename>.rooms) and an adventure file (<adventure>.adv). The most important of these two files is the .adv file that the compiler reads in first. This file basically contains all the startup information required to get your adventure running plus a few global definitions that you may need to make. Once this has been processed, the compiler then reads in the rooms file which contains the code to control the map data and the player's movement within your virtual world.

MIND YOUR LANGUAGE

The *Visionary* language itself is actually a very capable beast indeed that is based heavily upon BASIC. It includes all the constructs that you would expect from a modern BASIC including IF..THEN..ELSE..ELSEIF and WHILE..ENDWHILE etc. Like AMOS, *Visionary* also includes a comprehensive selection of Amiga-specific commands to handle sound tracks and graphics. Using its powerful screen buffers facility, it's quite possible to create anything from a simple graphic adventure like Magnetic Scrolls' *The Pawn* to even mouse-driven adventures like *Monkey Island* and *Dungeon Master*.



There's no flashy Intuition-based front end here – both the *Visionary* compiler and linker must be invoked from the AmigaDOS Shell



***Visionary* insists that the source code for your adventure game is split into a set of discrete source files. Here's only a small section of the absolutely massive rooms file which is required for the *Visionary* demo game**

Graphics can be incorporated into your game by drawing them within *DPaint* and then pulling them into a screen buffer using the LOAD SCREEN command. *Visionary* supports graphics in just about any screen mode and resolution including Extra HalfBrite and even HAM. By defining discrete 'views', resolutions and screen modes can even be mixed (a HAM picture in the top half of the screen and a medium resolution text region in the bottom half, for example). If you need to change any part of your graphics, *Visionary* also supports a number of generic drawing commands (some of which put even AMOS in the shade!).

Hot spots are also another powerful aspect of *Visionary*. Unlike a traditional graphic adventure, the player of your game can interact with objects using the mouse simply by setting up a series of hotspots. For example, if a scene contained an object such as a copy of *Amiga Shopper*, the player could examine the object simply by clicking on it.

Your games aren't just restricted to graphics. Like AMOS, *Visionary* provides direct support for sampled sounds and sound tracker modules saved in standard MED format.

CONCLUSION

There's no doubt that *Visionary* is a powerful system that is capable of producing adventure games of commercial quality, but getting *Visionary* to produce even the most basic adventure game with nothing more than just text takes a great deal of work.

Having struggled through assembly language, Cobol, C and AMOS, I must admit that the thought of learning another language didn't exactly fill me with enthusiasm.

Aegis claims that *Visionary* is a very straightforward language, but I'm afraid I'm not totally convinced. Although its command set is fairly straightforward, the amount of work required to get a game off the ground is quite over the top.

Many of the coding tasks could easily have been handled via some form of source code generator. Indeed; I ended up coding my own map creator in GFA BASIC simply because I couldn't face having to write the source code myself.

It took me little more than a quarter of an hour to realise that some form of source code generator was needed, so I'm surprised that Aegis itself didn't come to the same conclusion.

I have to say that I'm impressed with the power of *Visionary*. It isn't the answer to everyone's dreams, but coders will no doubt love it. I feel that there is room in the Amiga marketplace for a utility such as Incentive's *GAC*, even if it isn't quite as flexible as *Visionary*.

If you can face learning another new programming language, perseverance will reap substantial reward. The results obtainable from *Visionary* are out of this world. It's just a shame that so much work is involved! AS

RGON BUSTING • JARGON BUSTING

parser knows that each command will follow a strict set of guidelines. If the parser finds the word 'Take' for example, it would then check to see whether a parameter follows. If it doesn't, you'll be presented with a line that reads something like 'Take what?'. If a parameter does follow though, the parser knows that because the player is trying to 'take' something, the parameter must contain the name of an object within the current room that can be picked up. It then checks to see whether that object is there and whether it can be picked up and then acts accordingly.

Simple parsers are generally quite easy to write because the 'commands' that they accept follow a strict format. A decent parser however (like the one in *Visionary*) is far more flexible and will accept 'Take the red apple' or just 'Take apple' without batting an eyelid.

Compiler – A compiler is a separate program that converts the ascii text file that you create (your source code) into a stand-alone program. Although still not as fast as pure assembly language, compiled programs usually run considerably faster than their interpreted counterparts (AmigaBASIC is interpreted, for example).

CHECKOUT
AEGIS VISIONARY

Ease of Use ●●○○○
If you're expecting *Visionary* to be another STAC clone, forget it – *Visionary* is definitely for coders only.

Features ●●●●○
If you can fight through its rather unstable command set, you'll find *Visionary* to be a very capable performer.

Documentation ●●●○○
As you'd expect from a programming language, *Visionary*'s manual is well written and comprehensive.

Price Value ●●●○○
If you're prepared to put in the work needed to get the most form *Visionary*, it's worth every penny.

Overall rating ●●●○○
Something of a missed opportunity maybe, but *Visionary* is still very capable. It's just a shame that it isn't more accessible for the average user.

SHOPPING LIST

Aegis Visionary........................£59
Available from:
Precision Distribution
171 Bath Road
Slough
Berks
☎ 0753 551888

The great DTP dilemma

Jeff Walker takes stock of the latest versions of Professional Page, PageStream and Saxon Publisher, suggesting which one you should buy and why...

BEGINNERS START HERE

Even if you have had a lot of experience at word processing, the transition to desktop publishing is not always an easy one.

Word processing places certain restrictions on what you can and cannot do, it's a bit like painting by numbers. Desktop publishing is all about freedom of expression – you are given the canvas, the brushes and the paint, the rest is up to you.

Not everyone is suited to DTP, you have to have a degree of flair for design, or at the very least a desire to design, otherwise the frustration builds up as page after page comes out looking like a pair of dingo's kidneys.

To desktop publish properly, with complete freedom I mean, you need various things. You need lots of memory – the more the better, but at least 3Mb. You need a hard drive because loading fonts, pictures and text from floppies tends to dampen the enthusiasm for design. And you need good software – which is what this article is all about.

But this all costs money, and you'll not want to spend a fortune only to find that you and DTP don't see eye to eye.

The answer is to test the water first. Buy a budget DTP package that works almost exactly the same as a professional one. There's only one choice, *PageSetter II*.

Now *PageSetter II* is nothing like the version of *PageSetter* that was given away on the cover of our sister magazine, *Amiga Format*. In fact that version (1.2) does *PageSetter II* a terrible injustice because people tend to think that *PageSetter II* must be just like *PageSetter 1.2* but with a few improvements.

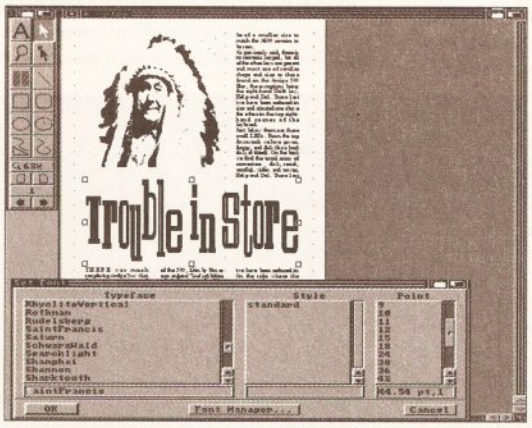
It's nothing like it. It's actually a black-and-white version of an earlier incarnation of *Professional Page*. It supports the Compugraphic font format, and looks and operates almost exactly the same as *Professional Page 1.3*. And although various advanced features are missing, *PageSetter II* can actually do a few things that even *Professional Page 3* can't.

So if you are a beginner and are thinking about getting into desktop publishing, there is no better place to start than *PageSetter II*.

It's been more than a year since we reviewed *Professional Page* and *PageStream*, and in that time Gold Disk and Soft-Logik have added improvements to their packages. *Professional Page* has moved on to version 3.0, *PageStream* on to version 2.2, and the other Amiga DTP package, *Saxon Publisher* from Saxon Industries has gone from version 1.1 to 1.2. It's time to take stock and look at all three as they stand today.

WORDS

Publishing is all about getting a message across to whoever is reading your publication, so the features of a DTP package relevant to putting words on the page are arguably the most important.



PageStream supports Adobe Type 1 fonts as well as its own outline font format and Compugraphic fonts

All three DTP packages can import generic ASCII text, and all three can import text directly from *ProWrite*, *Excellence!* and *WordPerfect*, automatically translating any style codes such as bold and italic into the DTP program's equivalent. On top of these, *PageStream* supports text prepared with the *1stWord* and Rediger word processors, and *Professional Page* also supports *KindWords*, *Scribble!*, *TextCraft*, *TextCraft Plus*, *TransWrite* and PC *WordPerfect*.

Professional Page comes with its own 'article editor', called AE, which is basically a version of the *TransWrite* word processor with the printing features removed. There is a 'hotlink' between AE and *Professional Page*, so to alter a section of text all you need to do is mark it as a block, press LeftAmiga-/, and AE loads with your highlighted text ready for editing. When you've finished another LeftAmiga-/ sends the text 'home' to *Professional Page*, into the exact same place on the page it came from.

This hotlink between AE and *Professional Page* works well and means that you do not need to buy a separate word processor and spelling checker for preparing and editing text, but *Professional Page* itself has a simple built-in text editor should you wish to change text directly on the page; it works quite slowly, however.

PageStream does not come with a program with which to prepare text, so you will need a word processor if you don't want to use *PageStream*'s built-in text editor which, like the one in *Professional Page*, works slowly. This text editor does include a spelling checker, but it is so slow that I can't imagine anyone wanting to use it for anything but checking the spelling of very small sections of text.

There is, incidentally, a brand new package available, *HotLinks*, which provides a text editor that links to *PageStream* like AE links to *Professional Page*. For more info on this, check out last month's issue of *Amiga Shopper*.

Saxon Publisher doesn't come with a text preparation program either. But it has a built-in text editor which, again, operates slowly. Like *PageStream*, you need to buy another package, only this time there's no hotlink available.

Professional Page is clearly winning the text importing and editing battle, with *PageStream* running a close second.

FONTS

But it's a different story for font support. *Professional Page* works with only Compugraphic or Amiga bitmap fonts.

The bitmap font support is there to speed up things for PostScript users – they would use the bitmap font on screen because it draws itself faster than the Compugraphic equivalent, but at output time it is the PostScript font of the same name (built into the PostScript device, or downloaded to the PostScript file) that gets used, which again is quicker than rendering a Compugraphic font.

Now there's nothing particularly wrong with the Compugraphic font system except that there are relatively few commercial Compugraphic fonts available, and next to no shareware or PD Compugraphic fonts. However the latest version of *Professional Page* comes with a FontManager program which is able to convert Adobe Type 1 fonts into Compugraphic type fonts, so the Compugraphic font

drought would seem to be over.

Professional Page is supplied with seven Compugraphic fonts, and Amiga bitmap fonts of the 'classic 35' found inside PostScript devices. To be able to use the 'classic 35' fonts with a non-PostScript printer, you would need to buy them in Compugraphic format – the Outline Fonts pack, in other words, which costs about £80 (ish) mail order.

Saxon Publisher has its own format of 'outline' font, and comes with 31 of the 'classic 35', the four Helvetica-Narrow/Condensed faces being the missing ones.

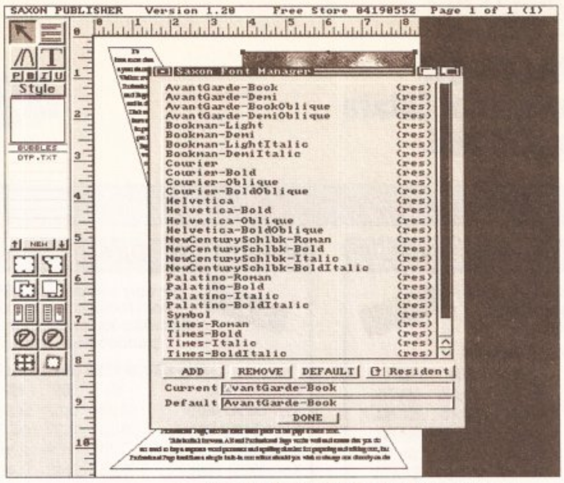
Because printer output is handled by the *SaxonScript Professional* PostScript interpreter, which comes as part of the *Saxon Publisher* package, all of these fonts can be output to Amiga Preferences printers (any printer for which there is a Preferences printer driver) as well as PostScript devices.

On top of this, *Saxon Publisher* is able to use any Adobe Type 1 font, and a utility can convert the lower quality Adobe Type 3 fonts into the higher quality Adobe Type 1 format.

To be able to use Adobe Type 1 fonts on-screen you need the Adobe Font Metric 'AFM' file and the Printer Font Binary 'PFB' file. *Saxon Publisher* produces a screen font 'on the fly' and does not require Adobe Binary Font 'ABF' files, which are bitmapped representations of the fonts for screen display purposes only.

PageStream has its own format of outline font, plus it supports Compugraphic and Adobe Type 1 fonts. It comes with 10 Compugraphic fonts and eight Soft-Logik outline fonts. The manual says that for Adobe Type 1 fonts to be displayed on-screen you require an 'ABF' file for each point size you want to display, otherwise a 'generic' font is displayed in the point size required, although at output time the proper font will be printed. I've managed to get some Adobe Type 1 fonts displayed on the screen without 'ABF' files, so perhaps this has been changed since the manual was printed, or perhaps I've found a bug that's actually useful?

Fonts-wise, then, we have a mixed bag. *Saxon Publisher* is probably leading, having the most flexible system, although it doesn't currently support the Compugraphic format (I'm told that version 2 will). It



Saxon Publisher's font system is probably the best of the lot. The ones in this list are provided with the package, plus it will import any PostScript font you throw at it

certainly comes with the greatest number of fonts.

Thanks to the new FontManager program that comes with *Professional Page 3.0*, there's not a lot to choose between it and *PageStream*. *PageStream* actually comes with more fonts, so it's probably got its nose in second place.

One aspect of outline fonts I haven't discussed yet is the time it takes to draw them on the screen. In the past *PageStream* was extremely tardy in this area, particularly with Compugraphic fonts, but version 2.2 is quicker. *Professional Page 3.0* is quicker still, even with Compugraphic fonts, and very fast with bitmap fonts.

But *Saxon Publisher 1.2* is easily the fastest, which I hope will end the long-running argument between *PageStream* and *Professional Page* users as to which has the quickest screen refresh rate. The answer is academic because *Saxon Publisher* is faster than both, although it should be kept in mind that *Professional Page*'s Interruptible Refresh feature means that you don't have to wait for the whole screen to refresh in order to carry on working.

STYLE TAGS

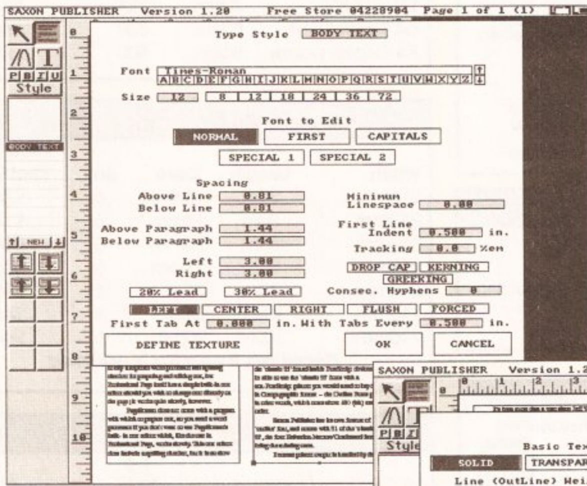
Although most home desktop publishers have difficulty coming to terms with the concept, style tags are an important part of the job.

It is important that, when you have a complete change of mind, the DTP program enables you to change things quickly. Otherwise it would mean starting from scratch and typesetting the whole thing again. That's what style tags are for.

For instance if I've got 30 chapter headings in my document, all set in Times-Bold 16pt, picked out in red and left justified, and let's say I decide to change them to Times-BoldItalic 18pt, turn them blue and right justify them, then it's going to take ages to do each of them one at a time.

> **"With the Pantone colour system, you get a reference book to select exact colours."**

With a style tag set up for chapter headings I would simply alter the relevant attributes in a style tags requester, and then every bit of text



Probably the best thing about *Saxon Publisher* is its text style tags system. Each style can have five slight variations (below the words 'Font to Edit'), and note that individual styles can be flagged to be greeked or not

in the document that had that tag applied to it would automatically change to the new requirements.

All three packages support style tags. *PageStream* and *Professional Page* let you set text the hard way, without style tags, if that's what you want, but *Saxon Publisher* insists that every single piece of text you have in the document has an associated style tag. This isn't necessarily a bad thing, it forces a 'structured' approach to your typesetting, but it also means you have to go through the style set-up process first, for every section of text that is set in a different style, no matter how small the difference, before you can put that piece of text on to the page.

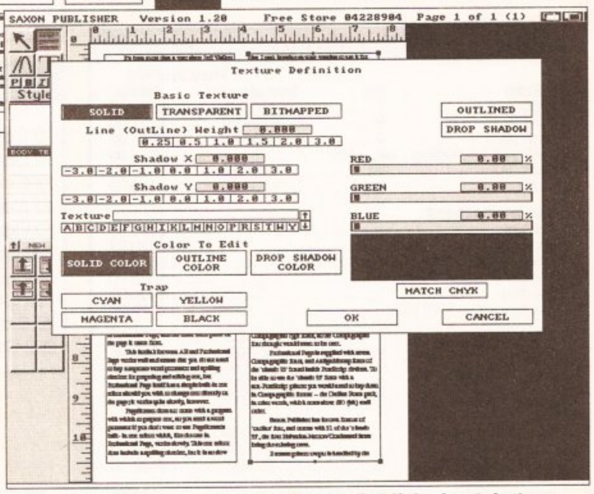
Of course, after you've used *Saxon Publisher* for a while you'll have built up a 'library' of style tags which can be loaded from disk, so the process doesn't stay long-winded for ever.

PageStream and *Professional Page* also enable you to save and load style tags.

Of the three style systems, *Saxon Publisher*'s is by far the most comprehensive, including details of things like outline, fill and drop shadow colour, plus 'texture', which is a special type of fill pattern. Its Type Style and associated Texture Definition requesters contain a plethora of features, and it only falls down on tab positions, which can be only evenly-spaced – every half-inch for instance.

Professional Page's style tag system is just a whisker behind *Saxon*'s, with the added benefit that separate Paragraph Tags can be set up and included as part of a Style Tag.

I don't trust *PageStream*'s style tags. I've had so many crashes and strange things happen while using them that I can't help but wonder if



Like *Saxon Publisher*'s style tags, the Texture Definition feature is excellent, allowing a separate colour and line weight for outlined text, and the ability to fill text with special 'bitmapped' textures, which are things like radial and gradient

this part of *PageStream* is fully working. In any case the system is the worst of the three, although adequate.

Lastly in this section about Words, a bit about colour. All three packages allow you complete freedom to set text in a wide range of colours using the RGB system

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Star LC15	9	£175.00	£240.00
Star LC24-200	24	£77.00	£230.00
Star LC24-200	24 colour	£77.00	£269.95
Canon BJ300		£159.00	£415.00
Canon		£175.00	£470.00
Canon BJ10E		£65.00	£230.00
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(three sliders, 0% to 100% values of red, green and blue) and the CMYK system (four sliders, 0% to 100% values of cyan, magenta, yellow and black). *PageStream* also supports the HSV, HLS and YIQ colour systems, should you require to use them.

Professional Page alone supports the Pantone colour system, which means that a colour reference book can be used so that you, or your client, can select the *exact* colours required, which will be printed with an ink of that exact colour rather than one created by the sometimes frustratingly inexact CMYK separation process. While this involves the cost of a separate printing plate for each Pantone colour used, it does mean that you get exactly the colour you ask for.

However for the most part you should find CMYK plenty good enough for the majority of colour work, and all three packages support the selection of colours using this system adequately.



Any text in *PageStream* can be filled with any pattern and any colour... you can even make up your own if the ones provided don't suit

RATINGS • RATINGS • RATINGS

Text importing and editing	
PageStream	☆☆☆
Professional Page	☆☆☆☆
Saxon Publisher	☆☆
Font support	
PageStream	☆☆☆
Professional Page	☆☆
Saxon Publisher	☆☆☆☆
Style Tags	
PageStream	☆
Professional Page	☆☆☆☆
Saxon Publisher	☆☆☆☆

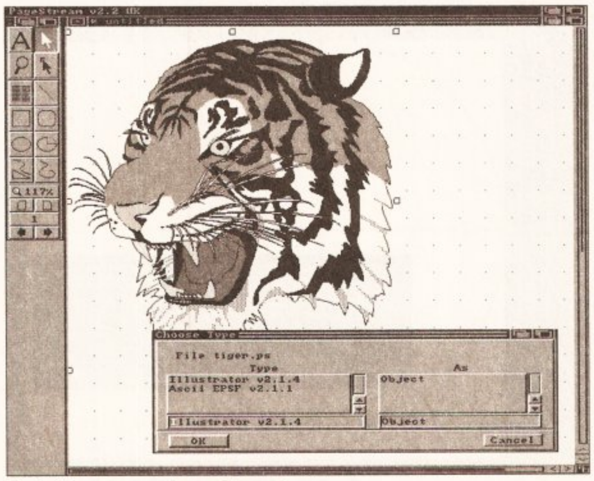
PICTURES

A picture is worth a thousand words. OK, it's a cliché, but before it became a cliché it was a fact.

Now, we are lucky on the Amiga that there is only the one bitmapped graphics file format, IFF ILBM. Unless you've used a PC for graphics work you won't really understand how important this is. I spoke to a guy the other day who is writing a book on PC graphics file formats and conversion utilities; after just a couple of weeks work he'd unearthed about 80 different formats.

I'm telling you this so you understand that it would be impractical for a desktop publishing program to support every graphics format ever invented, what we need is support for the most popular formats or the ability to convert alien formats to IFF ILBM.

PageStream's graphics formats support is impressive. Anything you import into *PageStream* is handled by a support program called a 'driver', so in order to recognise a new format of file all that needs to be written is a driver for it. This means that Soft-Logik can update and improve *PageStream* much more easily than if it had to re-write the whole program.



***PageStream* now imports and enables you to edit structured drawings created with Adobe Illustrator**

PageStream supports IFF ILBM from two-colours, through HAM, right up to 16.7 million colours (24-bit), plus seven alien bitmap formats – IMG, TIFF, MacPaint, GIF, Degas, PCX, NEO and TNY. There's no space in this article to explain what these names and letters mean, it's enough to know that they are popular graphics formats on the PC, Mac and Atari ST.

You should also understand that while graphics in these formats can be imported into *PageStream* and displayed on the screen, you cannot alter them in any way.

But there is one type of graphic that can be edited after importing, a structured drawing. *PageStream* will enable you to import and edit *Professional Draw* clips, *ProVector* (DR2D) drawings and Adobe Illustrator drawings. And while 'ungrouping' and editing such graphics in *PageStream* gives you a by-the-seat-of-the-pants feeling, it's an impressive feature. The GEM Metafile structured drawing format is also supported, not sure if you can edit these though as I haven't been able to find a GEM drawing to test.

Lastly, *PageStream* can import Encapsulated PostScript (EPS) graphics, and if these files include PICT or TIFF headers a bitmap representation can be displayed on-screen.

You don't need me to tell you that this is an impressive list of graphics formats. But there's a problem with the bitmaps – memory. *PageStream* insists on importing and storing the whole of the bitmap in memory, and if you use the same graphic more than once, it loads it and stores it in memory more than once.

So what? Well, for 32 colour or HAM IFF ILBMs this isn't a great problem, and 256 colour TIFFs and GIFs are fine if you have a few megabytes, but if you want to get really serious and use 24-bit IFF ILBMs you've got no chance unless you have a seriously expanded Amiga – and I mean *tens of megabytes* of memory. You see, even a smallish 24-bit scan at 300 dots per inch takes up about 2Mb or 3Mb of disk space. But this is in a compressed format, de-compressed it can double in size, or more.

So for *PageStream* to import such a graphic it requires enough memory, after the graphic has de-compressed, to store it, and then a bit more to display a black-and-white representation on-screen.

With 4-6Mb of memory you've got no chance, with 9Mb you might get away with one 24-bit picture and a bit of text.

There's a less memory-hungry way to do it – read the picture in a little bit at a time, and as you do so create (say) a four-colour version of it in memory for screen display purposes, but leave the picture itself on disk. After all, the desktop publishing program only needs the real colour information at printing time, at which point it can read it from disk.

There are further advantages to this method which affect the speed at which you can operate during the page design process.

> ***"If you want to use 24-bit IFF ILBMs, you've got no chance unless you've got a seriously expanded Amiga."***

This 'leave it on the disk' technique is the one *Professional Page* employs and means that dozens of large 24-bit pictures can be included in a single document without having to own a 64Mb expansion board. I have 7Mb in my B2000 and have managed 20 24-bit pictures easily.

The trouble with *Professional Page* is that it supports only IFF ILBM bitmaps (from two-colour, up to 24-bit). If you want to use an alien bitmap format it will have to be converted to IFF ILBM first. This means you need *Art Department Professional*, which is arguably the most impressive piece of software ever written for the Amiga. It's much, much more than a 'graphics format converter', and is a perfect DTP companion to *Professional Page*. But it costs money, of course, and you need at least 4Mb of memory in order to start getting the best out of it.

As well as IFF ILBM bitmaps *Professional Page* can import and display *Professional Draw* structured clips and *Aegis Draw* structured drawings. Although these can be re-scaled, they cannot be edited; for that you'll need *Professional Draw* or *Aegis Draw*. When *Professional Draw 3* is released there will be a hotlink between it and *Professional Page*, which will in effect add a complete complement of structured drawing tools to *Professional Page*'s repertoire at the touch of a button, in the same way that the hotlink to the Article Editor gives *Professional Page* a full set of word processing features.

EPS files can be imported and

printed to PostScript devices, but not displayed on-screen. This is something Gold Disk needs to work on.

I've left *Saxon Publisher* till last because it's almost a carbon copy of *Professional Page* with respect to the way it handles graphics.

The only bitmap format supported is IFF ILBM, up to 24-bit. Like *Professional Page*, *Saxon Publisher* leaves the actual bitmap file on disk and creates a quick four-colour representation for screen display purposes.

Instead of *Professional Draw* clips and *Aegis Draw* drawings, *Saxon Publisher* supports just the DR2D two-dimensional drawing format created by *ProVector*. EPS files can be imported, and if they have IFF headers (known as AEPS, which can be created with the supplied *SaxonScript Professional* PostScript interpreter) a bitmapped representation can be displayed on-screen.

SaxonScript will also let you convert any PostScript page, or portion of a PostScript page, into ILBM, DR2D or EPS format, the first two of which can be imported into an art or drawing package if you want to make changes. This enables you, for example, to steal, sorry, borrow graphics from somebody else's PostScript files, including those that include 24-bit pictures. (Dunnalf take a long time though.)

RATINGS • RATINGS • RATINGS

Graphics import/handling	
PageStream	☆☆☆
Professional Page	☆☆☆☆
Saxon Publisher	☆☆☆☆

DESIGN

Now this is the really subjective bit. Design. What one designer thinks is an absolute necessity, other designers will shrug their shoulders at, while there are features some designers use all the time which others have never heard of.

It's impossible in an article of this size to describe and discuss the design features of all three packages, so instead I'm going to concentrate on the bad points, the quirks of each package that will restrict the flow of the old creative juices.

The concept behind designing pages is simple – you draw some boxes on the page, you put some text or pictures into those boxes, then you jiggle them around a bit. And that, basically, is how all three packages work.

It's the 'jiggling around' which often thwarts newcomers to DTP, they expect the program to do it for them.

And to a certain extent the program can do it for you. For instance if you want your text to be in three snaking columns (newspaper style) of equal width, with the same space or 'gutter' between them, then you shouldn't have to calculate the widths and positions, draw and position the columns one by one, you should be able to tell the program the width of the page, the number of columns you want, the width of the gutters, and let the program draw them for you.

> **"PageStream gives you the gun, it's up to you whether you pull the trigger."**

This was the first thing that struck me about *Saxon Publisher*, although it can create automatic column 'guides' on a page, you have to draw the real boxes yourself, over the top of these dotted lines.

Then I spent half a day reading the manual and playing with the program trying to find out how to group a number of boxes together in order to move them so that their overall position changed on the page but their positions relative to each other remained the same. What a waste of half a day that was. *Saxon Publisher* cannot group boxes together.

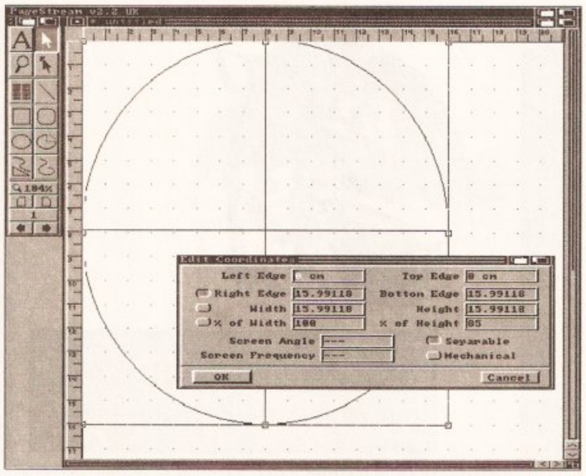
Neither can it link boxes automatically. I mean, say your document is a manual spreading over 20 pages, each with three columns of text on it – 60 columns in all. *Saxon Publisher* insists that you click on each box in the 'chain' one at a time in order to make the text flow into it from the previous column.

The three features mentioned above, I consider to be part of the basic requirements of any DTP package.

Saxon Publisher has some extremely advanced design features – like the ability to draw boxes of any shape and fill them with text or pictures, and like its 'textures' that provide easy ways to achieve radial and gradient fills – but I'm not sure how Saxon Industries can expect us to take *Saxon Publisher* seriously when it lacks basic design requirements.

The way it treats rotated boxes is confusing. For example, import a picture into a box and give the box a frame. Now rotate the box, *and it is the contents which gets rotated*, leaving the frame upright. If you want a rotated frame around your rotated graphic you'll have to draw and position it by hand, an impossible task to do accurately given the limitations of screen display resolution.

My pet hate is the system it uses for placing text and pictures on the page. After importing a file *Saxon Publisher* puts its filename into a list in the toolbox, after which you click on a box and then click on the filename to place that file into that box. But it only recognises and displays the first 10 characters of the filename. So if you've got two files called 'GreatLongName1.Txt' and 'GreatLongName2.Txt', upon attempting to import the second file the program complains that 'GREATLONGN' already exists and asks you to give the second file a new name. Bah!

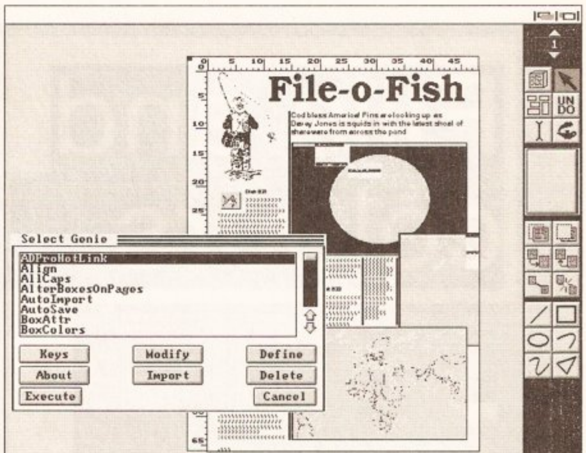


To get a bitmap to print at its correct aspect ratio from *PageStream*, its height must be set at 85% of its width

As if that's not bad enough, if your filenames are something like 'txt.plop.dumdum' and 'txt.plop.doodah', the fullstops appear to throw the system and the toolbox ends up with two names in the list that read 'TXT.PLOP.D'. Which is which? There is no way of telling without putting the file into a box on the page and having a look.

So with *Saxon Publisher* you have to stick to giving your text and picture files a maximum filename of 10 characters. I can't abide software which imposes working conditions.

Saxon Publisher certainly gives the design freedom we require, it's fast, and it's stable when asked to do a big job. But despite the 'advanced' features it proclaims, it lacks real power.



For the serious desktop publisher, a new Genie hotlink to *ADPro* provides *Professional Page* with image processing facilities

FREEDOM OF EXPRESSION

Moving on to *PageStream*, this program gives you a great deal of design freedom. The basic DTP requirements are all there, and of the three systems *PageStream*'s is probably the easiest to get accustomed to.

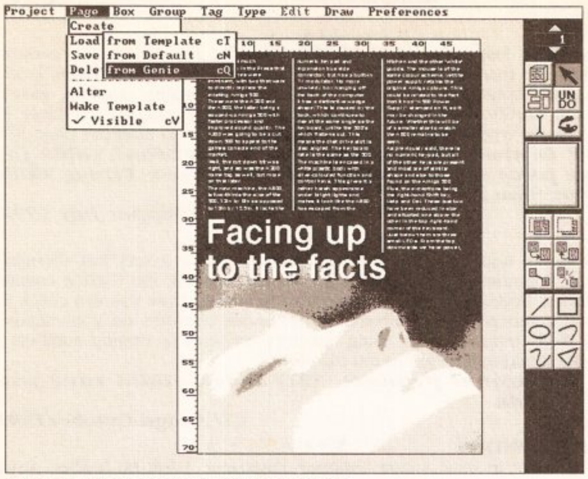
One feature which DTP newcomers absolutely adore is the ability to type text directly on to the page, and then pull at the handles around that text to stretch it to fill a hole on the page.

ASYMMETRICAL SCALING

This method of stretching the text is known as 'asymmetrical font scaling' and is generally frowned upon in the publishing world because it enables you to turn a beautifully designed font into an ugly unreadable one. But that's *PageStream* for you. It gives you the gun, it's up to you whether you pull the trigger or not.

PageStream's big problem is that it has never been a fast program, and it has always felt a bit wobbly when asked to jump through hoops. Rescaling a greyscale or coloured bitmap, for instance, can take a minute or more to complete, and importing a very large bitmap – a 24-bit one for instance – almost always ends in tears.

And it gets its aspect ratios wrong. An ordinary 640 by 512 pixel



Gold Disk's new Page Genie system means that whole documents can be laid out by answering a few simple questions

hi-res graphic, for example, has an aspect ratio of 5:4 – or to put it another way, its height is 80 per cent of its width. However, when you import a bitmap into *PageStream* it scales it... well, if a hi-res graphic is scaled to be 10in wide, which works out to be a scale of 102% according to *PageStream*, then, depending on how its system works, 102% high should be exactly 8in or exactly 10in. (Phew! Still with me?) But *PageStream* says 102% high is 9.482915in.

I mean it's not even square at 102% by 102%, so 100% wide by 80% high is not the correct aspect ratio either.

In actual fact, to scale a bitmap to its correct aspect ratio in version 2.2 of *PageStream* you must have it 85 per cent high as it is wide. (It doesn't tell you this in the manual, I had to find out by trial and error.)

ADDING IT ALL UP

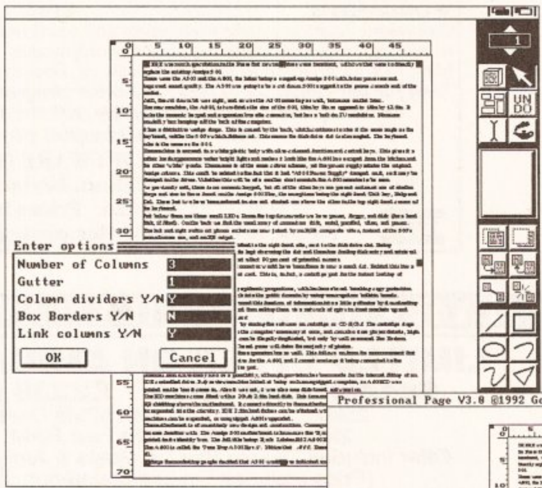
So if your graphic is 3.5in wide, how high must you make it to keep the aspect ratio correct?

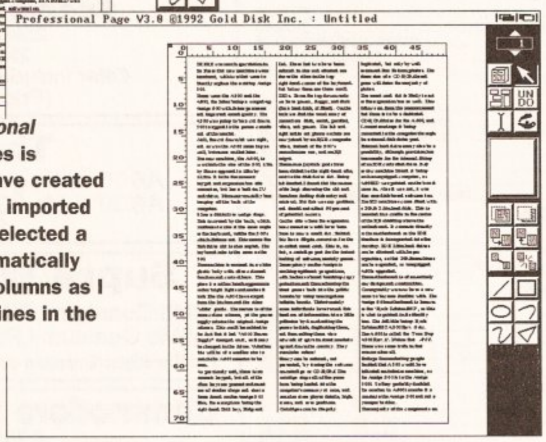
Whatever the answer, it involves you having to calculate it yourself, and yet there you are with a flaming computer in front of you and the program you're running can't do it for you.

Do not underestimate the importance of this bitmap scaling problem. Without the correct aspect ratio, circles will not print out as circles, but as squashed or elongated ellipses.

On top of this, *PageStream*'s printed output of rotated, twisted or slanted bitmaps is diabolical, nowhere near good enough for professional quality work.

All in all, *PageStream*'s bitmap graphics features leave an awful lot to be desired. There's no doubting that *PageStream* has incredible power, but to increase its speed it sometimes forsakes accuracy, and often ends up biting off far more than it can chew. You cannot ask for more freedom than *PageStream* gives you, and I would certainly recommend it to home users and semi-professionals, but I cannot in all honesty recommend it for professional or 'industrial' use, where fast and top quality results are expected.





The power of *Professional Page*'s Function Genies is phenomenal. Here I have created one wide box (above), imported text into it and then selected a Genie which will automatically turn it into as many columns as I want, complete with lines in the gutter (right)

GENIES LIGHT UP PRO PAGE

Professional Page's design features are now as comprehensive as *PageStream*'s, thanks to the new 'Genie' system. You must have read about these, and know that they are basically ARexx scripts that perform a collection of functions at the press of a button.

It is difficult to pick on *Professional Page* because there are not many things which it does badly. In pre-Genie days there were stacks of things *PageStream* could do that *Professional Page* couldn't, but the Genies have changed all that, and, indeed, turned the tables.

Professional Page can't slant or twist bitmap graphics, although it can rotate them, and re-scale them of course. Accuracy is excellent, the speed of bitmap rotation, re-scaling and subsequent screen refresh is second only to *Saxon Publisher*, but *Professional Page* rotates the 'bounding box' as well, so frames around rotated graphics are not a problem.

One drawback is that *Professional Page* won't let you import text or graphics into anything but rectangular bounding boxes. *PageStream* can't do this either, but *Saxon Publisher* can.

Honestly, I'm sitting here racking my brain trying to find something else about *Professional Page* to complain about, and all I can think of is the fact that to use version 3 properly you need lots of memory (6Mb or more I'd say), and the fact that it no longer runs from floppies so a hard drive is required. But these are hardly criticisms, they're akin to saying you can't run a jet plane on 4-Star petrol.

Given enough memory, *Professional Page* is entirely stable, faster than *PageStream* and just a tad slower than *Saxon Publisher*, gives you incredible freedom and power on its own, but in tandem with *Professional Draw* there's not a lot you won't be able to do.

BEST BUY • BEST BUY • BEST BUY

PROFESSIONAL PAGE

***PageStream* is powerful, albeit a bit slow and rather unstable; *Saxon Publisher* is the fastest of the three, stable, powerful on text styles but weak on design basics; *Professional Page* is fast, stable, and, thanks to the Genies and the hotlinks to the Article Editor and *Professional Draw 3* (when it is released), it is the most powerful DTP package for the Amiga by quite some way.**

RATINGS • RATINGS • RATINGS

Design features	
PageStream	☆☆☆
Professional Page	☆☆☆☆
Saxon Publisher	☆

CONCLUSION

Despite the comparatively recent emergence of *Saxon Publisher*, the battle for desktop publishing supremacy on the Amiga is still between *PageStream* and *Professional Page*.

It's nip and tuck all the way, with Gold Disk and Soft-Logik leapfrogging each other with upgrades and enhancements, although that can only be to the advantage of all of us DTP-ers out here.

If you want a condensed version of my verdict on these three packages, take a glance at the above best buy box for a summary.

To conclude, it has to be said that the latest version of *PageStream* is basically a 'prettified' version of its predecessor, with a few bug fixes and a slight improvement in operating speed, whereas version 3.0 of *Professional Page* is a significant advance from version 2.1, with new features and the ability to automate many processes using the Genie system. AS

SHOPPING LIST

PageStream 2.2 .... £199
by Soft-Logik Publishing Corporation, 11131F South Towne Square, St Louis, MO, 63123 USA
☎ 0101 800 829 8608

Professional Page 3.0 .... £249
by Gold Disk Inc, 5155 Spectrum Way, Unit 5, Mississauga, Ontario, Canada L4W 5A1
☎ 0101 416 602 4000

Distributed in the UK by:
HB Marketing, Unit 3, Poyle 14, Newlands Drive, Colnbrook SL3 0DX
☎ 0753 686000

Saxon Publisher 1.2 .... £249.95
by Saxon Industries, 14 Rockcress Gdns, Nepean, Ontario, Canada K2G 5A8
☎ 0101 613 228 8043

Distributed in the UK by:
Surface UK Ltd, 5 Rockware Avenue, Greenford, Middlesex UB6 0AA
☎ 081 8130470

DTP SPECIAL

PRO-DTP

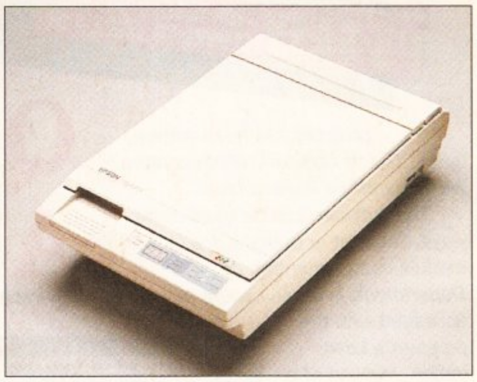
If you're serious about DTP then you should check out two new arrivals on the Amiga scene – a 24-bit colour flatbed scanner from Epson and a PostScript-compatible laser printer from Star. Cliff Ramshaw hooks them up to his A2000 and dives in at the high-end...

With the Epson colour scanner and Star laser printer you have two devices which make it possible to import high quality images into Amiga desktop publishing software, manipulate and output them at an equally high resolution. So, running software such as *Art Department Professional* and *Professional Page* or *PageStream*, it's possible not only to produce top-notch grey scale print-outs but also proof colour work which can be sent to any PostScript typesetting bureau for final printing.

But before you jump at the chance to enter the world of pro DTP there's just a few questions you might like answering – not least the price. With the scanner at £1300 and the laser at around £1000, quality doesn't come cheap – but then it never did, did it?

Let's take a look at the input side of things first of all...

EPSON GT 6000 SCANNER



FIRST IMPRESSIONS...

What a superb piece of equipment this scanner is! In all of my days of reviewing, never have I come across an item of hardware so easy to set up, use, and which produces such good results.

Q WHAT'S SO SPECIAL ABOUT IT?

A The Epson GT 6000 is a full colour, A4 flatbed scanner. This means that it can scan pictures up to 210x297 mm in size, in either straight black and white, 256 grey scales, or 16.7 million colours. It also means that you don't have to bother dragging a scanning head across your original image.

All you have to do is plonk the picture to be scanned on a tray, close the scanner's lid and let the machine get on with it.

Before you get too excited, remember that a full colour A4 scan at the maximum resolution takes up about 142Mb.

Q WHAT'S THE BEST RESOLUTION TO SCAN IMAGES?

A Nineteen different resolutions are available with the scanner, ranging from 50 to 600 dots per inch. Choosing a resolution always involves a trade off between detail required and space available. It also depends on the resolution of your output device and the scale at which the scanned image will be output. For instance, if your printer has a resolution of 300 dots per inch and you intend to print a picture in a box which measures 2 inches square, then if the original image is 4 inches square there is no point in scanning at a resolution higher than 150 dpi.

There are other things to watch out for, too, such as the resolution at which your original images have been printed. Magazine pictures are printed using a process called screening. Dots of black, yellow, magenta and cyan are placed in close patterns to reproduce a full range of colours. Scan a magazine picture too closely and this screening effect will be quite noticeable.

> *"Choosing a resolution involves a trade off between detail required and space available."*

Yet this, and other potential problems, are dealt with in a detailed way by Epson's excellent manual. Not only does it explain the basics of setting up and using the scanner, it contains plenty of handy tips on how best to scan a number of different types of images.

Q HOW EASY IS IT TO CONTROL THE SCANNER?

A Well that's the thing that makes this package such a boon. The scanner controller

JARGON BUSTING • JARGON BUSTING

Bitmap – A representation of an image in the form of a grid of dots which can be either black or white. The greater the number of dots per inch, the more the image looks smoothly drawn and the more difficult it is to discern that it is made up of dots.

Escape codes – A means of sending a printer formatting instructions embedded in an ASCII text file.

Font – The group of letters, numbers and special characters that comprise one variation of typeface, eg: 12pt Times, 12pt Times Bold, 12pt Times Italic. Sometimes (mistakenly) used in desktop publishing to refer to a type family.

Point – A standard unit of typesetting measurement equal to 1/12th of a pica, precisely 1/72nd of an inch in desktop publishing (approximately in conventional printing). The height of a font – the distance from the top of the highest ascender to the bottom of the lowest descender – is normally expressed in points.

Printer driver – A program that sits inbetween any applications program producing output and the printer. It converts any codes describing text and graphics format into a form suitable for a specific printer.

Typeface – All sizes of a particular type family and style, eg: Times Italic, Helvetica Italic, Courier Bold.



Here is the final scan of last month's *Amiga Shopper* cover, in all its full 24-bit, 16.7 million colour glory. You need an awful lot of disk space to store this kind of image: not only is it 24-bit, but it's A4 in size, taking up over 1.2Mb – and that's for a low resolution scan! Doubling the scanning resolution quadruples the memory requirements

program has been written by ASDG, the company which created *Art Department Professional*.

The software can be used in two ways. The first is to make it a module complementing *Art Department*, in which case it is accessed with the program's Load option. Instead of a disk requester, the scanner screen appears, and the image produced by the scanner, which is plugged into the Amiga's parallel port, is loaded into memory just as if it had been an image already recorded on disk.

The second method is to use the scanner controller program as a stand-alone application, the advantage being that (aside from not needing to own *Art Department*) scans are recorded direct to disk, so it's possible to scan images larger than your available memory.

The installation program that comes with the software is excellent. Help is available at all stages, and there are three different user options – novice, intermediate and expert – giving different levels of control over the installation procedure.

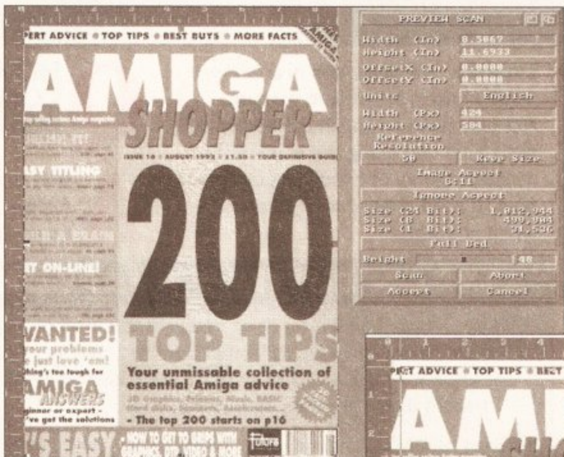
There's even the chance to run through a trial install so you can see how it works without actually writing anything to disk. It's things like this that let you know you're using a truly professional piece of software.

Q WHAT ABOUT THE ACTUAL SCANNING?

A Once the software is installed, You'd be amazed at just how easy it is to grab an image. Full control of the scanner is available from the screen – there's no need whatsoever to touch the hardware except to place pictures on the bed.

Scanning is divided into two stages: 'Preview' and 'Fine Scan'. The preview mode scans at a low resolution monochrome, using half-toning to achieve grey scales. Clicking on the sides of a rectangular border with the mouse enables you to select precisely the area of the image you are interested in. Click on Scan when you've done so, then click on Accept if you're happy with what you've chosen. At any time, you can step through each of the available resolutions and the software will tell you precisely how much memory the scanned image would take up in monochrome, grey scale and full colour.

Once you have everything set up and have clicked on Accept, it's time to scan for real. This screen operates in much the same manner as the preview one. You select whether you want a monochrome, grey scale or full colour image, and which resolution you require. You will be told how much memory this will take up; if there isn't enough the figure will be displayed in black (irrelevant if you are scanning direct to disk). You may also select the scanner's zoom option, which ranges from 50 to 200 percent, although ASDG recommends you always scan at 100 percent and use *Art Department* to zoom if you need to do so, since it is capable of producing more intelligent results.





Using the scanner is simplicity itself. Go to the preview screen, which gives you a dithered grey scale interpretation of the image at a low resolution. This enables you to crop the image. Memory requirements are given for different resolutions and numbers of colours. Once you've selected the area you're interested in, move to the scan window, click on the button and the scanner does the rest

Q CAN YOU ALTER THE IMAGE AS IT'S BEING IMPORTED?

A Yes. There are three further options which may be selected. The first is brightness, which is self-explanatory. Setting gamma correction will alter the balance of light and dark tones to produce the optimum scan for either a monitor or one of several types of printer. Selecting colour correction will do the same thing for the relationship between colours.

After that, a click on the Accept button sets things in motion. If you're scanning direct to disk, first enter a filename in a Save requester.

As with the hardware, the manual for the software is of an excellent standard. Because the program has been written specifically for this scanner, there is no guess work involved: the manual tells you exactly what you need to do to get the results you want. Not that there's much need for a manual – you'll be scanning within minutes of taking everything out of the box.

Q IS IT REALLY THE BEE'S KNEES?

A Sure is. The images produced are of remarkable clarity. In fact, I only noticed one flaw: when colour scanning an original with black next to white, a fringing of colours occurred. Apart from this, I can recommend the scanner unreservedly to the serious Amiga desktop publisher.

SHOPPING LIST

Epson GT 6000 and £1303.80
ASDG Driver software
Epson UK
Campus 100,
Marylands Ave, Hemel Hempstead
Herts HP2 7EZ
☎ 442 61144

ASDG
925 Stewart Street
Madison, WI 53713
USA
☎ 0101 608 2736585

CHECKOUT EPSON GT 6000

Ease of Use ●●●●●
Couldn't be easier. Plug in the hardware, install the software and you're away.

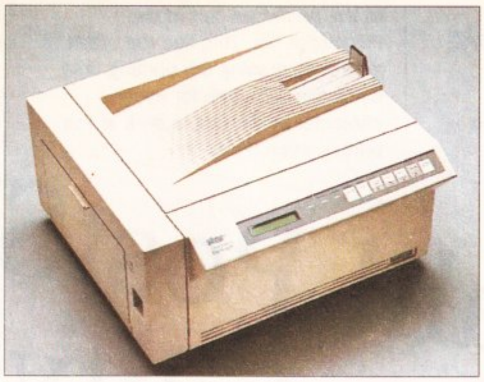
Quality ●●●●○
Excellent in most cases, but let down by the fringing around black and white work.

Features ●●●●●
Scans in monochrome, grey scale or full colour in a vast range of resolutions up to 600 dots per inch.

Documentation ●●●●●
Both manuals are object lessons to technical writers.

Overall rating ●●●●●
This is the kind of useful, high quality package that gives one faith in the Amiga's ability to be a serious machine.

LASERPRINTER 4 II STAR SCRIPT



FIRST IMPRESSIONS...

The Star LaserPrinter 4 StarScript has PostScript compatibility and, although expensive, it is nevertheless good value when compared to its competitors.

Q WHAT'S THE BIG DEAL THEN?

A Like all laser printers, the StarScript is a page printer. One page is printed at a time, not as a series of horizontal lines, but all at once.

The printer uses its own memory to store an image of the page as it is sent by the computer. Once the whole image has been received, the printer puts it on to the paper using much the same mechanism as a photocopier.

The advantage is that laser printers don't suffer from banding, the distortion in vertical spacing between lines caused by inaccuracies in the paper feed mechanism of line printers. Also, because laser printers use expensive toner cartridges instead of ribbons, their output tends to be much cleaner and even. Neither are there any problems with wet ink smudging, as may be experienced by ink jet owners. The printer's resolution is 300 dots per inch. This isn't bad, although the composite dots can be seen in text at a large point size. You may be surprised to find that the resolution is lower than some dot matrix and most ink jet printers, which, if used with the correct printer driver, can yield up to 360 dots per inch.

Q WHAT KIND OF PAPER WILL IT ACCEPT?

A Paper is fed in from a tray at the side, which can be altered to accept several different sizes of paper: letter, legal, A4, executive and B5; along with the following kinds of envelopes: monarch, com-10, international DL and international C5. Optional cassettes and a paper feeder are also available.

Q BUT WHAT ABOUT GETTING IT TO WORK?

A Finding the correct printer driver is always a problem with hard copy output from the Amiga. Star's printer makes this a little easier by providing two emulations, selectable from the control panel or via escape codes. The first is an Epson FX-80 emulation, provided primarily for compatibility with dot matrix printers. The chances are that you won't bother with this, and will instead use the Hewlett Packard LaserJet IIP emulation. Select this along with the HP_LaserJet driver supplied on the Extras disk and you can achieve some pretty nifty results.

The problem, of course, is that the Amiga printer driver isn't entirely compatible with the printer's emulation – this is hardly surprising since the driver was written for an earlier version of the printer. Nevertheless, the output is up to scratch in all but one department: an irritating margin being created around an A4 page.

Using the HP emulation, it is possible to output straight text, in which case one of the printer's internal fonts is used. In HP mode, these are fairly limited: there are two different sizes of Courier, a monospaced font, in either normal, bold or italic, and a font called Line printer which squeezes in more characters per inch than is fair to the average eye. It's possible to make use of other fonts, too.

Cartridges are available with the likes of Times Roman, Prestige Elite, Helvetica, Letter Gothic and bar codes. It is also possible, in Hewlett Packard emulation mode, to download fonts via software. Since most Amiga packages have difficulty in enabling the user to choose from a printer's available selection of fonts anyway, the choice of extra fonts is largely academic.



Grey scale prints look particularly attractive with the Star LaserPrinter. This one was output from *Deluxe Paint* using the Hewlett Packard Laserjet emulation at 300 dots per inch. Of course, it takes a good while for a picture like this to print out, and if the original image is too dark then the results are going to be disappointing. It's best to convert a colour picture to grey scale and adjust the palette to avoid too dark prints

Q IS IT ANY GOOD AT PRINTING IMAGES?

A Graphical output is fine – monochrome or grey scale, that is. It goes without saying that this is a black and white printer, with shades of grey being represented by variations in the density of black dots.

The results, as you can see from the illustrations on this and the following page, are excellent, but sending graphic images to the printer is a time consuming business.

Q WILL IT WORK OK WITH MY DTP SOFTWARE?

A Well, I tried out the printer with Soft-Logik's *PageStream 2.2*. Normally *PageStream*, along with other Amiga DTP packages, works by sending each page to the printer as a huge bit-mapped picture, in the same way that some of the high end word processors – or so-called 'document processors' – do. The difference is that *PageStream* will output to the highest resolution the printer is capable of, in this case 300 dots per inch.

> **"The printer can be used to produce very professional looking documents."**

It was therefore easy to create an A4 page using any of the fonts that *PageStream* cared to offer me, and including structured clip art or bit-mapped pictures from, say, *Deluxe Paint*.

The whole lot was sent to the Star printer under HP LaserJet emulation. This resulted in a very smart looking page being produced by the printer. Any of the fonts supplied with *PageStream* can be used because they are being sent as part of a large bit map – the printer need not know anything about them.

The printer can be used in this manner to produce professional looking documents, letters, reports and so on.

The only problem is the over-large margins caused by the lack of a suitable printer driver. This is a problem with most laser printers used with the Amiga. The Star LaserPrinter is more expensive than many, though, and so you would expect it to deal with the problem in some way. It does.

Hurrah! PostScript compatability!

Using one of the 35 built-in PostScript (sorry, *StarScript*) fonts rapidly produces attractive looking text. Furthermore, a PostScript compatible software package will download to the printer any fonts that it doesn't know about. Needless to say, these can be scaled to any size required – that's the beauty of PostScript

Q WHERE DOES POSTSCRIPT COME IN?

A PostScript is the solution – or rather Star's cloned implementation of it, StarScript. It offers a lot more advantages than the seemingly simple ability to use more of an A4 page.

Once you have a page made up in *PageStream*, you can happily change the printer configuration from the HP driver to the supplied PostScript driver. The result, barring a few millimetres around the border, will be exactly the same. Using PostScript gains you no extra resolution: the printer is still a 300 dpi printer. The advantages are more subtle.

> **"Using a PostScript printer gives you instant access to 35 high quality typefaces."**

With PostScript, a page isn't sent as a bit map, but as a computer program which describes the page's format in mathematical terms. All PostScript printers have a standard set of 35 typefaces. If your page uses only these standard typefaces, then it will print out fairly quickly because the computer only has to tell the printer the name of the font, the size it is to be printed in, and which characters are to be printed in which order. It's almost as fast as printing in straight text mode, although the output is much more attractive.

Q SOUNDS GOOD, BUT DOES POSTSCRIPT OFFER MORE?

A If your page uses fonts not known to the printer, then the font information is also sent to the printer as part of the PostScript file. This has the effect of greatly increasing the printing time, since the definition for every character in the font is sent to the printer, even if only a couple of characters are actually used on the page.

A further problem is that the printer only has a limited amount of memory, so it can only store so many downloaded fonts in this way.

Programs such as *PageStream* are clever enough to instruct the printer to forget a font once it has been used so that room can be made for the next. This solution is fine when working from an application, but the process of printing a PostScript file created elsewhere may lead to problems if it exceeds the printer's memory.

Using a PostScript printer gives you instant access to 35 high quality typefaces. In addition, printing in any of these typefaces in any size will be much quicker than printing using equivalent bit-mapped representations.

The advantage that PostScript offers in the graphics department is something called half-toning.

Half-toning is very similar to dithering, except that, being much more sophisticated, it gives higher quality grey scale images. Finally, using a PostScript printer is especially useful for those who intend to send their work to a studio for output on to film via a Linotron machine. This is an expensive process, so the ability to completely proof a PostScript page at home first could save lots of money.


Glory of Imperial Russian Army

The Russian Army has succeeded in repelling the notorious Bonaparte from our sacred homeland. Bonaparte's army is in full retreat, pursued by our valient boys. Our man on the Moscow Road reports...

After a protracted stay in Moscow, Napolen Bonaparte's army has turned tail and fled!

General Kutuzov, until recently Commander-in-chief of allied forces, was reported to have burst into tears upon hearing the news.

FATAL BLOW

Kutuzov always claimed that the French army had been dealt a fatal blow at Borodino. Critics scoffed, pointing out that had the French been defeated, then the Russians would not have retreated beyond Moscow and allowed the French to take possession of the city.

Nevertheless, the French are now in retreat, and there has been no major engagement since Borodino.

PETERSBURG OVERJOYED

The citizens of St. Petersburg are said to be overjoyed. It was feared that the French would next march on that noble city. While there is no question that our glorious forces would have failed to repel the noiseome French, one can only rejoice in the grace of God that it was not necessary.

FRENCH IN DISARRAY

Bonaparte's army is said to be in disarray. We have conflicting reports, but it is estimated that more than half his men have either starved, deserted or been killed. They are under constant attacks from Cossacks and Russian Army irregulars who have formed themselves into small raiding parties. Russian losses are reported to be minimal.

REWARD FOR KUTUZOV

Kutozov is currently in disgrace because of the sack of Moscow (see panel). It should be borne in mind that this is the man who repelled the French. This report hopes that Tsar Alexander will reward him accordingly.

Stop press * stop press * stop press * stop press * stop
We have just received reports of a German army massing on Russia's borders. Diplomatic relations have been broken off. We await further news, but it looks like another war...

King Tut was today unavailable for comment

Moscow in flames

The holy city of Moscow is burning.

The fires, which are raging across the city causing untold damage, were initially thought to be lit by the French on their departure.

FRENCH SPOKESMAN

A spokesman for the French however claimed that the fires were started by the Russians when they passed through the city and left it undefended.

ACCIDENT

A new theory gaining acceptance is that the fires began by accident. Lagre parts of Moscow are built from wood, and the fire service has been inactive since Moscow was evacuated. Given that several fires start every day in the city during ordinary circustances, and that it has been recently occupied by an army lighting many camp fires which cares nothing for it's environs, it is hardly surprising that fires have started.

More news as it breaks.

Here is a quick page produced in *PageStream* and output to the printer. This one was printed using PostScript, but the same results are achieved using the HP LaserJet emulation

Q BUT AREN'T ALL PRINTERS JUST ONE BIG HEADACHE?

A Not in this case. The manuals which come with the Star LaserPrinter are very good.

The manuals explain the basics of setting the printer up, installing a toner cartridge (which can be surprisingly tricky if you've never had to before) and selecting an emulation. They then go on to give an explanation of the laser printing mechanism, typographical terms and even how to define one's own fonts for downloading to the printer. The various escape codes which the printer responds to are described in detail.

I can't comment on the manual dealing with the PostScript aspects of the printer, because I wasn't supplied with one. Make sure *you* get one, so that you get the most from the printer – PostScript compatibility is one of the printer's most valuable features.

Q SO, IS IT WORTH MY HARD-EARNED LOOT?

A The Star LaserPrinter 4 StarScript offers high quality output at a reasonable price. Nevertheless, think very carefully before buying it. Do you really need PostScript compatibility? Do you really need laser quality output?

If the answer to the above two questions is yes, then it is a good buy. If not, then I'd recommend an ink jet or a cheaper, Hewlett Packard emulating laser printer instead. **AS**

SHOPPING LIST

Star LaserPrinter II £1643.83
Starscript
Shop around; expect to pay.....£1000
Toner cartridges......................£92.83

by Star Micronics UK,
Star House,
Peregrine Business Park,
Gomm Road
High Wycombe,
Bucks HP13 7DL

CHECKOUT
STAR LASERPRINTER II

Ease of Use ●●●●○
Plugs into serial or parallel port for hassle free printing.

Features ●●●●○
The PostScript compatibility plus two other emulations give you almost everything you could wish for from a laser printer.

Documentation ●●●○○
Well written manuals with plenty of info, but better indexes would help for easy access to subjects.

Price Value ●●●○○
Not bad for a PostScript compatible laser, but do you need this?

Overall rating ●●●●○

It's a good quality product delivering excellent results, but make sure you really need PostScript before shelling out this kind of cash.

CONTENTS AT-A-GLANCE

OUR EXPERTS TACKLE YOUR REAL-LIFE PROBLEMS

AMIGA ANSWERS

How do I connect my computer to my video recorder?

NEED SOME HELP?

How can I transfer a PostScript file to a PC?

Can I add one set of fonts on one disk to a set of fonts on another

Which programming language shall I learn?

How do I set the script flag on a file?

Are there any books to help me use sprites in assembly language?

Why doesn't my Amiga format disks to 880K?

How can I clear a window of text in C?

ALL OF YOUR AMIGA PROBLEMS SOLVED

SO WHAT DO ALL THOSE ICONS MEAN?

Beginners: this icon will appear next to any questions which are 'basic' in content.

General: this icon is used for any general Amiga-related queries.

Caution: be sure that you fully understand the answer before trying it out.

Danger: the answer to this question could well invalidate your warranty – or you!

Hardware: this icon is used to denote questions relating to general hardware.

Buying advice: we use this icon if the question asks us for buying advice.

Printers: this icon denotes a query about printers, printer drivers and so on.

Technical: any queries about programming will have this icon next to them.

Video: this icon relates to any query about using your Amiga with video hardware.

Music: this icon is for questions about MIDI, sampling, synthesizers and so on.

Programs: any program-specific queries have this icon next to them.

Comms: if your question relates to comms, this is the icon that we'll use.

WHATEVER YOUR PROBLEM WITH THE AMIGA, WE ARE HERE TO SOLVE IT

That's the task we have set ourselves in giving you the best possible support for your Amiga. We are confident that our experts can cope with any technical questions you can throw at them. If they don't already know the answer to your problem, they will find it out for you.

We are prepared to deal with any problem you have with the Amiga, from general enquiries about AmigaDOS or Workbench, through questions about specific pieces of software and hardware, to advice on what you need to buy to do a particular task. If it's to do with the Amiga, we will help out. What we cannot do is offer this service over the telephone – do not phone us with your enquiries, but write to us at the address below.

We also cannot enter into personal correspondence – all enquiries will be dealt with in the pages of the magazine. This does mean a bit of a delay in solving your problem, but you'll just have to be a little patient and wait for it to appear in print. You won't get a personal reply even if you enclose an SAE with your letter, so please don't bother.

Send your question on the form below to: Amiga Answers, *Amiga Shopper*, Beauford Court, 30 Monmouth Street, Bath BA1 2BW.

The Amiga Answers panel consists of our consultant editors Mark Smiddy and Jeff Walker – and, of course, our resident deputy editor Cliff Ramshaw. We will also be calling on the services of all our other contributors, so you won't be able to catch us napping whatever the subject of your query.

Each panelist will be dealing with queries in their own specialist area(s) so it would help us greatly if, when writing, you label your query envelope with the name of the expert who can solve your particular problem.

Below is a list of areas of expertise. It's a list that we will add to and update every month, so you will know who to write to about any subjects not mentioned here.

Gary Whiteley –	Video
Paul Overaa –	Programming, music
Mick Draycott –	Hardware, programming, MIDI
Jeff Walker –	Desktop publishing, programming
Mark Smiddy –	AmigaDOS, business, CDTV, hardware projects, hard and floppy disk drives
Jason Holborn –	Public Domain, AMOS
Jolyon Ralph –	Programming, hardware, CDTV
Cliff Ramshaw –	All the other bits and pieces

If you send in a question for the Amiga Answers experts, please fill in and include the form below (or a photocopy if you don't want to cut up your magazine). And please also make sure that you include all the relevant details – version numbers of software and so on – so that we have the best chance of helping you. Send your form and question to: Amiga Answers, *Amiga Shopper*, 30 Monmouth Street, Bath BA1 2BW. Sorry, but we cannot personally reply to any questions – even if you include an SAE.

Name: ____________________

Address: ____________________

____

____

Your machine:

A500 ☐ **A1000** ☐ **A1500** ☐

A2000 ☐ **A3000** ☐

Approximate age of machine: __________

Kickstart version (displayed at the 'insert Workbench' prompt)

1.2 ☐ **1.3** ☐ **2.x** ☐

Workbench revision (written on the Workbench disk)

1.2 ☐ **1.3** ☐ **1.3.2** ☐ **2.x** ☐

PCB revision (if known). Do not take you machine apart just to look for this! __________

Total memory fitted (see AVAIL in Shell for 1.3 Workbench) ________

Chip memory available (see AVAIL in Shell) __________

Agnus chip (if known) __________

Extra drive #1 (3.5"/5.25") as DF_: Manufacturer __________

Extra drive #2 (3.5"/5.25") as DF_: Manufacturer __________

Hard disk: ____Mb as DH_: Manufacturer __________

Extra RAM fitted – type, size in Mb and manufacturer __________

Details of any other hardware which could help us to answer your question:

____

Now, use this space to describe your problem, including as much relevant information as possible. Please continue on a separate sheet if necessary.

____

AS 17

NO PROBLEM!

Welcome once more to *Amiga Answers*, the section of the magazine where we endeavour to straighten out your hassles with that wonderful but occasionally stubborn machine, the Amiga. Every month we devote more space and apply more resources than any other Amiga magazine to solving your problems. We receive something like 100 queries a week, so the service is obviously appreciated.

It's my job to co-ordinate the whole thing: sorting through the questions and sending them off to the relevant chappies for the kind of in-depth answers you've come to expect; and compiling them into the lovingly crafted pages which you see before you.

I call on a wide variety of expertise to make sure you get the answers you need, which is why *Amiga Answers* is so successful. There's Mark Smiddy, industry guru, AmigaDOS-tamer and business applications wizard; Jeff Walker, probably the most knowledgeable Amiga desktop publisher there is; Jason Holborn, long-time AMOS explorer and PD sampler, as well as good all-rounder (or should that be all round good guy?); and Toby Simpson, programmer for Millennium and hardware expert.

If it's a question about video, then I'll pass it on to Gary Whiteley, our professional videographer for whom the word 'genlock' means 'mixing Amiga graphics with video for magical results' and for whom the word 'snipwirral' means nothing at all.

Programming queries are dealt with by Paul Overaa, who's not afraid to code in any language, and who doubles as a MIDI maestro to solve your sequencing slip-ups.

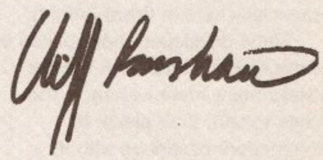
Our hardware guru is Jolyon Ralph. This man knows just about everything about disks, both hard and floppy, and what he doesn't know about memory he's probably forgotten. Communication breakdowns are fixed-up by Phil Harris.

All in all, a formidable team, supplemented by my own not inconsiderable Amiga suss. Let's face it, if we can't answer your question, it's probably one of the Mysteries of the Universe.

This month we explain the mysteries of the Enhanced Chip Set, solve your printing problems and much, much more. Take a look.

Don't forget to keep sending us those problems – we love 'em!

Cheers,
Cliff Ramshaw (Deputy Editor)



VERSION 2 AND ECS



I am a little confused over the new Workbench 2.0, Enhanced Chip Set: Superfat Agnus and all the rest of it. I would like to upgrade but am not sure exactly what I am getting with the so called 'upgrade' packs that are for sale.

Would I for instance get 2Mb of 'Chip' RAM if I upgraded, as I have heard that the Zydec RAM expansion is not compatible. Also can you tell me the difference between the various monitors that are available, what is multi-synch, RGB, and so on?

A Docker
Coventry

The Enhancer pack sold for £80 contains the new Kickstart 2.04 ROM, and installation disks and manuals. The ECS Denise chip is not included in the pack: this is available seperately for around £35.

Expanding to 2Mb of Chip memory requires the DKB Mega-Chip board, which at over £200 is not really economical for fitting into the A500, it makes more sense to sell your old A500 and upgrade to an A500 Plus or A600.

Most 512Kb RAM expansions are compatible with 1Mb of Chip RAM; most of the 1.5Mb RAM expansions are not, so these should be avoided unless they specifically support the extra Chip RAM.

The most popular monitors for the Amiga fall into the following categories:

- **'Standard RGB'** – Monitors such as the Philips CM8833, the Commodore 1083, 1084 and 1085 and the new Protar monitor are all more or less the same – they display all the standard Amiga graphics modes, but the interlaced video modes flicker. As these monitors were designed to work with computers such as the Amiga you should have no problems installing or using them.

- **'Multisync'** – Some Multisync/Multi-Synch/Multiscan monitors will work with the Amiga. These are designed mainly for use with PCs, so getting them set up, obtaining the right cables and choosing them can be difficult – go to a dealer who can *guarantee* that a monitor will work with your machine.

A multisync monitor must be capable of scan rates between 15Khz and 31.5Khz horizontally and 50Hz (PAL) or 60Hz (NTSC) vertically to work with the Amiga. If you have a Flicker Fixer or similar device, you only need 31.5Khz horizontally, so most Multisync monitors will work. The new Super Denise chip and Workbench 2.0 will allow multisync owners access to a new screen mode, productivity, which will give a high resolution screen without requiring a flicker fixer. ***JR***

SPEED DEMON



I am considering buying a hard drive and processor accelerator for my A500. Having checked through the advertisements in *Amiga Shopper*, I have noticed that GVP has started to market a combination of a 40 MHz 68040 with a high speed 105Mb SCSI hard drive for just £530. Being a fan of programs such as *Vista* and *Sculpt 3D*, such an add-on would be ideal for me.

This leads to several questions though... Is the GVP system any good? Will the 40MHz 68040 speed up my A500 substantially? Are there any other 'combo' systems such as the GVP drive available on the market for under £800?

I've heard that the Amiga is dying and that developers are starting to shy away from the A500. Is this true? Is the Amiga condemned?

If I spend out over £500 on a hard drive, I don't want to be left with a system that is no longer supported.

Edgar Santos
Alvor
Portugal

Silica hasn't actually got around to sending me a review sample, so I can only go by what I've seen of the A530 at the recent *Amiga Shopper Show* (thanks to GVP for giving me a demo). The price that you quote for the 52Mb combo card is actually wrong – the base unit (40 MHz clock speed with 1Mb of 32-bit RAM and a 52Mb SCSI drive) costs £750 and is based around the 68030, not the 68040 that you quote. That aside, it's still phenomenally good value for money. Thanks to the 32-bit RAM which is fitted as standard, programs such as *Sculpt 3D* and *Vista* are speeded up substantially. Add an optional 68881 maths co-processor and an A530-equipped Amiga really cooks!

It is true that the Amiga is not doing as well as it could in several parts of the world (most notably in France and the USA), but it's booming in other countries

JARGON BUSTING • JARGON BUSTING

Accelerator board – A device which either includes a central processor like the Amiga's, or a more advanced one in the same range, but operating at a higher speed. An accelerator is useful for calculation-intensive applications, such as 3-D rendering.

Agnus chip – The custom chip dedicated to graphics. Agnus contains the blitter, the device which can move around large sections of graphics data at high speed, providing scrolling and sprite facilities. A hardware line drawing facility is also included.

Chip RAM – The area of the Amiga's memory directly accessible by the custom graphics and sound chips. Originally a maximum of 512k, newer machines fitted with the fatter Agnus graphics chip can access 1Mb, enabling smoother animations and more screens to be displayed at once. The new A600 comes with an Agnus chip capable of addressing 2Mb of Chip RAM.

JARGON BUSTING • JARGON BUSTING

Font – The group of letters, numbers and special characters that comprise one variation of typeface, eg: 12pt Times, 12pt Times Bold, 12pt Times Italic. Sometimes (mistakenly) used in desktop publishing to refer to a type family.

Hexadecimal – A number format in which each digit can have one of sixteen (instead of the more usual ten) values. Digits above 9 are represented with the alphabetic characters A-F.

Partition – Part of a hard drive separated off from the rest. As far as Workbench, AmigaDOS and the rest of the world is concerned, a partition is a disk in its own right. Problems do come to the fore when you try to copy data between two partitions on the same drive.

Printer driver – A program that sits inbetween any applications program producing output and the printer. It converts any codes describing text and graphics format into a form suitable for a specific printer.

(especially here in Great Britain).

Some developers have pulled out of the Amiga market, but there's always many more waiting in the wings to take their place. If Commodore continues with its development program, then I personally feel that the Amiga's success is guaranteed for many years to come. ***JH***

CANON NOLQ



I am having problems getting my Canon PW-1080A 9-pin monochrome printer to work properly with *Pen Pal 1.4*. In the main, the printer works very well using the *EpsonX* driver, including the full range of graphics densities, but the one thing it refuses to do is NLQ.

The reason for this is that the printer seems to emulate an Epson printer in every respect apart from this one escape sequence, which is totally different. The Epson code for NLQ is 27 120 49, the Canon code 27 40.

You are probably aware that NLQ can be selected from the front panel of the printer, but this seems to be disabled when the *EpsonX* driver is used, and operable when I use the EpsonXOld driver – which I don't want to use all the time as it supports only two graphics densities.

That's the information, now for the questions.

Is there another driver on the Workbench or Extras disks which will work with this printer? If not, is there a way to re-write the Epson driver, or can anyone do it for me?

Why did Canon use a different code for just one escape sequence?

Bill Kennedy
Balfron
Glasgow

Writing a printer driver is not a trivial or inexpensive task. It requires a good knowledge of the Amiga and the C programming language, plus a few months worth of development time, plus the printer to test it on.

Your best best is to 'hack' into the EpsonX[CBM_MPS-1250] driver with a shareware file editor such as *NewZAP* or *FileMaster* and search for any 1B78 sequences – that's the hexadecimal equivalent of 27 120 in decimal.

Hang on a sec...

Right. I've had a quick look, and there are only three 1B78s. The first one has a 01 byte after it, the second has FE after it, and the third has 00 after it.

Not sure what the second one is, but the first looks like NLQ ON and the third looks like NLQ OFF. So if you change the first to 1B28 (and overwrite the following 01 with another 1B, so it gets ignored by the printer), and then change the third 1B78 to whatever your manual says is the code to switch NLQ off (overwriting the following 00 with a 1B), you might just have a driver which works properly with your PW-1080A.

But remember to work on a copy of the printer driver so you can revert to the original when it all goes wrong! ***JW***

WHICH WP 1



I have been using *KindWords 2* for a long time now, and may I say what an excellent program it is, but I am considering upgrading to *Pen Pal* or *Wordworth*. I write a lot and I need some particular functions, and this is where you can help.

Firstly I require a word count facility. The next functions I need are just plain punctuation features, namely a dash – it is a common mistake to use the minus sign as a dash, it makes a fine hyphen but is not long enough for a proper dash ≠ and proper quotation marks; the quotation marks I get with *KindWords* are simply two straight lines, I want the curly ones with blobs on them.

But it does not end there, the second quotation mark should be inverted. These rules also apply to the apostrophe.

Upon investigation I have discovered that most typewriters also output quotation marks and apostrophes incorrectly. I have a Star LC24-200 Colour printer, which I know can do the right characters if the software is right.

So what I need to know is, which word processor do I buy?

Kevin Howell
Brislington
Avon

If the characters you require are part of one of the fonts inside the Star LC24-200, then you will need a word processor which enables you to select that font and print any character in that font. The only Amiga word processor that gives you this kind of full control over a printer is *Protext 5.5*, which also has the word count facility you require. ***JW***

WHICH WP 2



Are there any Amiga word processors that will allow me to use all the fonts of a Hewlett-Packard DeskJet 500, including those installed in cartridges?

I currently use *QuickWrite*, which is fine, but I often have the need to use a number of different fonts, sizes and pitches within a page, especially for titling. Non-global headers and (especially) footers would also be nice. I am not particularly interested in a word 'publisher' (*Wordworth*, *Pen Pal*, et al) as I have no need for graphics within a document, but if one of these fulfilled my criteria then that would be fine.

A decent spelling checker and thesaurus wouldn't go amiss either.

On a related subject, which is the best DTP package for the Amiga? I use *PageSetter II* currently, but this is obviously limited in terms of text handling and speed. The purchase of a new DTP program will probably coincide with me getting a hard disk, so my main requirements are speed, flexibility and number of available fonts. Text has a much higher priority than graphics in my particular application of the program.

While on the subject of hard drives, how much memory will a typical hard drive take for its own purposes? Will it steal graphics (Chip) memory or expansion (Fast) memory?

Robin Bigwood
Kingswood
Glos

Protext 5.5 has all the features you mention. In fact it's the only Amiga word processor that has non-global headers and footers – or in other words, headers and footers that can be changed at any point within a document.

But for the type of specialised lay-outs you seem to be talking about you might find it easier to get top quality results with the *Professional Page 3.0* DTP system. It comes with only seven fonts, but more are available, including stacks of cheap PD and shareware ones.

But the main point here is that with *Professional Page 3.0*'s Page Genie system you will be able to create a standard lay-out design – positioning boxes which contain things like your headings, main text, headers and footers – and then have the software lay out the document automatically by simply selecting your Page Genie and answering a few simple questions about which files to import into which boxes, and which fonts and point sizes to use.

Professional Page 3.0 requires at least 2Mb of memory and a hard drive, so it's a good job you're thinking of buying one. Each partition you have on your hard drive will take up about 20-30K Chip memory. ***JW***

BOXING CLEVER



I sometimes need to use my Star LC24-10 as a typewriter as my invoices are pre-printed. I am finding it difficult to get a word processor to print exactly in the Net, VAT and Total boxes. I use *Protext*. Can you help?

David Mason
Newcastle
Staffs

What you need to do is set up a 'template' invoice document with each element of the invoice positioned correctly on the *Protext* page. Then you simply overwrite the default data you've used for positioning purposes with the details of the particular invoice.

Creating this template will involve using a ruler which has tenths of an inch marked on it, and a bit of experimentation. Use pica pitch (10 characters per inch) for your invoices, and measure how far across and down the physical invoice certain boxes are.

For instance, if the VAT box was 6.3 inches across the page and 5.5 inches down the page, then your VAT position on the *Protext* template would be at column 63 on line 33 – the line number is calculated by multiplying the 5.5 inches by 6 lines per inch, the standard line spacing.

If you study the *Protext* 'stored

continued on page 37

PHOENIX

SALES 0532-311932

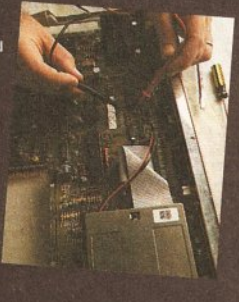
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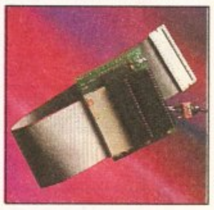
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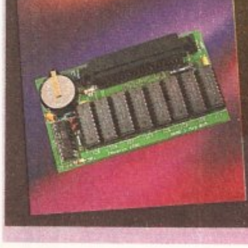
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(for details see below/opposite)

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continued from page 32

command' language you'll discover that it is possible to create a 'program' that will ask you questions like name, address, amount and so on, and then place these details into the correct positions on the invoice template; you can even get it to calculate totals and VAT. Check out the Stored Command, Mail Merging and Sample Merging Documents sections of the manual. ***JW***

CONFUSED PUBLISHER

I hope you can help me with this query as it is proving to be beyond my logic and understanding.

I have been playing around with DTP for some time, with reasonable success on *PageSetter*, and I have now invested in *Professional Page*. I expected to be able to import my *PageSetter* pages straight into it, however this doesn't seem to be the case. Is there a way to do this?

But this is not my immediate problem. The need to write to you is with concern over my laser printer. I have bought a Panasonic KX-P4430 as a substitute to my KX-P1124 dot-matrix, and I cannot get a full A4 print-out from the machine.

I am using an Amiga 500 with extra memory and hard drive, running Workbench 2. I can get the full A4 if I use the never very highly rated *KindWords*, however when I use *Professional Page* I can only get down to about 25cm from the top of the page. Anything below this is left off.

I am aware that most laser printers indicate the need for a large margin, and had I not been getting full A4 from a LaserJet III I would probably not have considered a laser printer at all.

Can you please give me an answer, enabling me to get full A4 from *Professional Page*? Enclosed is a list of the settings I am using plus samples of test work that indicate the problem.

DM Vaughan
Radley
Oxon

Firstly, *PageSetter II* documents cannot be loaded into *Professional Page*. Despite the many similarities, there are several things that work quite differently, which all ends up with the file formats being incompatible.

In theory it should be possible to write a program to convert *PageSetter II* documents into a format which is readable by *Professional Page*, but you (and everyone else) will have to write to Gold Disk about this and throw yourselves on that company's mercy.

In the meantime it'll be quicker and less frustrating to re-create your *PageSetter II* pages in *Professional Page* by hand.

The 10in LaserJet cut-off is a 'feature' of the printer driver. It has been a *big* problem for years and I've been warning people about it in this magazine (and others) for years. Unfortunately most people either take no notice or think I'm kidding. I don't care, it's not my money.

The reason *KindWords* is printing all the way to the bottom and *Professional Page* is cutting off at 10 inches is because *KindWords* is doing a text printout, while *Professional Page* is doing a graphics print-out. This used to be one of the main differences between word processing and desktop publishing, but most Amiga word processors have graphics output features these days, so it affects them as well.

The 10 inch limit only affects graphics. You'll get the same problem with any other Amiga program that prints in this way.

I have searched worldwide, and I can find no proper Amiga LaserJet II or III driver. I know of nobody who is developing one.

On Jamdisk 2 there is a LaserJet Plus driver that has this 10in graphics limit removed. It's nowhere near perfect, but it's the best there currently is.

What an absolutely stupid state of affairs, eh? It's about time Hewlett-Packard and Commodore got off their butts and did something about it!

If there is anyone reading this who is considering buying a laser printer, you may like to know that there are proper Amiga printer drivers for the Canon LBP-4 and LBP-8 series of laser printers, available on Jamdisk 9.

The Jamdisks cost £2 (inc) from: *JAM*, 75 Greatfields Drive, Uxbridge UB8 3QN (☎ 0895 274449). But they don't take plastic, the silly people. ***JW***

BAD SCANS

When using my Datel Geniscan hand scanner in photo mode, why is the picture quality so awful? It's made up of large dots which I cannot retouch. Even in letter mode, when scanning smooth lines, they come out jagged.

Is it me, the software, or the hardware?

I'm into DTP, hence the scanner. How do I get smooth edges to imported graphics using *PageSetter II*? And how do I speed up the printing?

I use the Compugraphic fonts for most of my leaflet, but for headlines they are not suitable. How do I use the fonts from *PageSetter 1.2* without creating jaggies?

In Jersey the two (!) computer stores do not carry 'unusual' extras like scanners. How can I try before I buy and ensure I get the right tools? I'll need a genlock soon...

Russell Butler
Trinity
Jersey

The reason your photo scans are so awful is because the Datel Geniscan software and hardware isn't up to the job.

What you need is a scanner package which enables you to turn the dither created by the scanner (the pattern of large dots you mention) into a true 16 greyscale image. We published a hand scanner round-up in issue 13 – read that if you want in-depth information, but the bottom line of the article is basically that the Power Scanner is currently the best.

To obtain smooth edges to imported bitmaps in *PageSetter II* you need to scale the graphic down to at least 25 per cent of its full size. Double click on the box that's holding your graphic and adjust both scaling figures to be 0.25. (If your graphic is med-res you will need to double the Y figure to keep the correct aspect ratio).

Printing at high resolution takes time. It's not governed by the software particularly, it's down to the speed of the processor inside the computer and the speed of the printer itself. The only way to significantly speed things up is to buy an accelerator.

You cannot use Amiga bitmap fonts in *PageSetter II*, like those used with *PageSetter 1.2*, without getting jaggy output. That's why Compugraphic fonts were invented. Speak to George Thompson Services (☎ 0707 664654) about PD and shareware Compugraphic-type fonts or EM Computergraphic (☎ 0255 431389) for commercial fonts for *PageSetter II*.

I'm not sure how you expect me to answer your last question. Move to somewhere that has more computer shops? OK, silly answer maybe, but if the products can't come to you, then what other choice is there but for you to go to the products?

How about making a trip to the Future Entertainment Show at Wembley next November 5-8? It's either that or take the advice given in *Amiga Shopper*. Which, after all, is what we're here for. ***JW***

UNKIND WORDS

I have a Canon BJ-10e bubble jet printer. With this I bought the Canon48 printer driver.

My problem is that I am able to print standard text with *KindWords*, but not in SuperFonts. The computer will not accept it and will revert all text on the screen to the standard printer font.

Can I buy additional fonts or software to get the printer to do fancy text? Is it worth investing in another word processor (such as *ProWrite 3.2*?) to get quality text, or is it the driver that needs to be updated?

Christopher Mitchell
Deeside
Clwyd

Yes, you need a better word processor. And that Canon48 printer driver, by the way, is an early development version of the CanonBJ130 driver. There's a much better driver specifically written for the BJ-10e and BJ-10ex, including a special printer preferences and font download program, available on Jamdisk 5 from *JAM* ☎ 0895 274449. ***JW***

NO WAY DOWN

I have a MicroLine U83A 9-pin printer, and when it prints the letters 'p', 'y' and 'g' it leaves off the bottom part of the letter so that 'p' looks like an 'o' and 'y' like a 'u'.

I don't know whether my printer head is damaged or I'm using the wrong driver. I've used generic, Okidata, Okimate and Epson drivers from the Extras disk to no avail.

MA Hawes
Newport
Gwent

Yup, the head's knackered. I think you'll find it'll be cheaper to buy a new printer than get that old MicroLine fixed. You could do a lot worse than replacing it with the Star LC-200, for which there is a proper Amiga printer driver, written specifically for the LC-200, on Jamdisk 5 (from *JAM* on 0895 274449). ***JW***

WORKBENCH 2 FAILURE

I have bought Workbench 2. I own an A1500 with GVP Series II hard drive and 4Mb of extra RAM. I installed

JARGON BUSTING • JARGON BUSTING

Hard drive – Like a floppy drive, but much bigger and faster. Also, its disk cannot be removed.

Kickstart – The most basic and central part of the Amiga's operating system. These days it is held in ROM, so that it is immediately present when the machine is switched on. A1000s have Kickstart on a floppy disk meaning that on power up this disk must be inserted before the Workbench disk.

RAM – Random Access Memory, so called because any part of it can be accessed immediately, rather than having to search through from the start of memory to the point of interest. RAM is used to hold programs while they are being executed and temporary data. The contents of RAM are lost when the power is switched off.

ROM – Read Only Memory is used to store essential programs, such as Kickstart and many of the library routines. These do not have to be re-loaded each time the Amiga is switched on because ROM retains its contents without power. No new information can be written to ROM, hence the name Read Only.

Startup-sequence – A program which is executed every time the Amiga is switched on and after every reset. It sets up the system so that it is usable from Workbench, and may be customised by those who have unusual hard or software requirements.

the 'wonderful Workbench 2' software on my hard drive, bought a ROM switcher from Phoenix, and fitted my old 1.3.3 and the new 2.04 ROM. Since having had the Workbench 2 I have had a problem with the screen locking up and programs generally crashing about. *DPaint 4*, *Video Studio* (the Workbench 2.0 version), *Platinum Works*, *Pagesetter* (the free one on the May issue of *Amiga Format*) and other programs all do this. This is infuriating especially if I've just spent two hours drawing only to find screen locks up without warning.

I have heard a rumour that there are some bugs in Workbench 2, namely a screen hang and a white bar that appears on the top of the display when using certain titling programs such as *Video Studio* and *Scala*. Are these rumours true?

I phoned Commodore and was told to phone the dealer I had bought the computer from as I wasn't allowed to talk to the technical department direct. I explained that I bought the computer from one dealer and the upgrade from another, and that I didn't know which to phone. I was still not allowed to speak to Commodore's technical support department. I am appalled at the treatment I have received at the hands of Commodore.

Phoning the supplier of the upgrade produced no results. I was told that another chip in my computer was faulty, and that this fault only comes to light with Workbench 2. My question to you is can you help me? What is wrong? Is it the new Workbench?

Also, is there a way of being able to boot from a choice of startup-sequences from my hard drive so I could choose 1.3 or 2.04?

Steve Flambert
Andover
Hants

I must say that I'm suprised with the problems you are having with Kickstart 2.04. I've been using Kickstart 2.0 in various versions for two years now, and it has got to the stage where I have delete my entire 1.3 partition from my machine as it never gets used.

All the machines at our office now use Kickstart 2 (except a couple of very early CDTVs that need special ROMs), these machines are used very heavily full-time running more applications than our Bank Manager cares to remember, and I have to say that Kickstart 2.04 is one of the most stable operating systems I have used on any computer.

There are problems with old (and some not so old) software. Many programs written before Kickstart 2.0 became available have since been updated, so it is worth checking with suppliers for information on this.

There are known problems with *DPaint 4* running under Kickstart 2.0 on an unacclerated Amiga (the palette editor will crash the machine after a few clicks). This is a bug, and has been fixed in version 4.1, available from Electronic Arts by the time you read this.

I have never come across problems with Workbench 2.0 like the rumours you have described. It sounds as if someone is getting confused with the problem on the Amiga 3000/A2320 Display Enhancer where the top half line is not deinterlaced.

It sounds to me from the symptoms which you are reporting that bugged software is causing your problems, not the Kickstart. Commodore's reluctance to get involved is understandable. Commodore sells its machines to dealers, which in turn sell the machines to the public.

The first port of call for any complaints, questions or queries about hardware should be to the dealer, and in my opinion dealers which know nothing about the Amiga, or try and pass the buck to Commodore shouldn't be in business.

A tip for buying things here: phone up the dealer, ask to talk to the technical department and ask the people there a question. If they are prepared to talk to you about problems not directly related to something you have bought from them, and they know what they are talking about, then there is more chance of them helping you out if you have problems. Only buy from box shifters if you are prepared to sort these problems out yourself. Commodore has better things to do than make up for the lack of support given by many dealers.

And a quick way to execute two different startup-sequences for different versions of Kickstart...

Name your two startup-sequences as Startup1.3 and startup2.0. Now type in the following as your file named startup-sequence:

```
version exec.library 36
if warn
execute "s:Startup1.3"
else
execute "s:startup2.0"
endif
```

Remember you will have to have two sets of C,L,Libs and Devs directories and assign them all from your scripts. ***JR***

UNDER WRAPS



I need a word processor that will let me wrap text around imported pictures created with *Deluxe Paint III*. I've looked at *Pen Pal* and *Wordworth*.

Are either of these packages any use on a 1Mb Amiga 500, as I understand that very little space will be left for text once an image has been imported?

Are there any alternative word processors, or must I increase my Amiga 500's memory? In which case, what are my options bearing in mind that I do not have a hard drive and am otherwise happy with a 1Mb machine?

David Ludgate
Lightwater
Surrey

Both the packages you mention can be used on a 1Mb Amiga, but you will be severely restricted as to what you can create and print. The only solution is more memory.

There are two ways to expand the memory of your Amiga 500: internally or externally.

Internal memory boards are less expensive, but they will require you to open up your Amiga, remove the 68000 CPU, insert the board into the CPU slot, and then put the 68000 CPU in the space provided on the memory board. Some internal memory boards also require you to run a fly-lead from the board to the Gary chip.

If reading the above paragraph made you go weak at the knees, then you'll have to buy an external memory box that slots into the expansion port on the left-hand side of the Amiga. ***JW***

CALL THE ORACLE!



I am the owner of an Amiga A500 with a single external disk drive, Star LC200 printer and an Amstrad DMP2000 printer. What I would like to know is whether there is a Teletext adaptor available for the Amiga such as those available for the BBC Micro that we have at my school. If so, could you please tell me how much it costs and where I can buy it.

Also, I am thinking about purchasing a hard drive for my A500 to store games such as *Silent Service* and *F29 Fulcrum* as well as IFF files from *DPaint*. Which would you recommend?

Robin Little
Lanark
Scotland

You're in luck! A Teletext adaptor is available for the Amiga in the form of MicroText. It's available for £143.50 from MicroText ☎ 0705 595694.

If you're after a hard drive, then you won't go far wrong with a GVP Impact Series 2 drive. Available in either 52 or 105Mb configurations, the GVP drives are some of the fastest and most capable drives available for the Amiga. The basic 52Mb GVP drive costs £380 and is available from Silica Systems ☎ 081 309 1111. ***JH***

AGNUS AGAIN

Come on guys, get your act together about this 1Mb Chip modification. In June's *Amiga Answers Special* you answer to Fat agnus Low-Down was for revison 5 Amiga's: "The track you will need to cut is the one carrying the _EXRAM signal..." Surely, this will just disable the trapdoor expansion as you said in reply to Memory Switching.

Later on in the *Amiga Answers* letter *Scan, Bang!* Isthiaq Ahmad writes in to say he has 1Mb Chip RAM with an 8371 Agnus. According to you and just about everyone else you need an 8372A Fatter Agnus, or don't you?

You don't seem to be able to make up your mind about the maximum access time the trapdoor expansion chips need to be either. Again, in *Scan Bang!* you say they need to be at least 120ns to work, yet in *Chip Ram Pipped* you reply "The early A501 used slow 120ns and 150ns chips...".

Looking inside my A500 I've got 16 150ns chips and 16 120ns access chip on the trapdoor. My questions are:

a) Will the 120ns chips in the trapdoor expansion work OK for Chip mem?

b) Do I need an 8372A Agnus?

c) How easy is it to replace the Agnus chip holder as I've bent mine out of shape! What sort of price is it going to cost me to have it done 'professionally'?

d) Will a fatter Agnus 8372A work OK with Kickstart 1.2 switched in?

e) If I get a new Agnus, which pin do I have to isolate so as not to boot up in NTSC mode?

Stuart Burge
Maidstone
Kent

Unfortunately Chip RAM expansion is not just a matter of 'It works' or 'It doesn't work'. As many people have discovered, sometimes they get a system that 'sort of works', or 'sometimes works'. This is, quite often, due to RAM speeds. 150ns chips are really too slow to be reliable as Chip RAM, and you will find your machine will crash quite often with them.

120ns are usually OK, but on newer A500s they can be too slow. It depends on the revision of the board, the speed of the chips on the Amiga motherboard (two of our Amiga 500s have ridiculously fast 70ns chips fitted; we needed 80ns RAM for the Chip memory on these).

The _EXRAM signal is indeed the right line to cut. It indicates that Expansion RAM (as opposed to Chip or Fast RAM) is fitted to the slot. When disconnected normally, it disables RAM, but it needs to be disconnected when the RAM is used as Chip RAM.

You need an 8372A Agnus for 1Mb of Chip RAM. The 8371 can only address 512Kb of Chip RAM, no more.

The Agnus chip holder is a right pain to replace, so I suggest you take it down to your local TV repair shop and ask them to fix it. It isn't likely to cost more than a few quid.

As for Kickstart 1.2, there shouldn't be any problems with 1Mb of Chip RAM, although I've not tried this combination for long.

The pin to isolate is pin 41, marked as TEST in the Agnus 8370 diagram in the Amiga manual. ***JR***

SAFE PARKING

About six months ago I sold my ageing A500 and bought a new A500 Plus. My A590 hard drive was attached to the new machine and all worked well.

However, I recently decided to repartition the drive: up until then I had used it as one 20Mb partition named Workbench. I wanted to partition the drive into three separate 'drives': DH0: as a 4Mb Workbench (SYS:) partition, DH1: as a 10Mb Program partition and DH2: as a 6Mb Data partition.

I've had the A590 for nearly two years and so setting this configuration caused no problems at all. The thing that's confusing me is the Park program.

As you know the A590 doesn't have auto-parking heads so that I have to run Park before I switch off. The manual states that if you add extra drives you need to modify Park to access the extra drives. It then goes on to say that each additional Partition must be added to the Partition list on the Park Icon.

What I'd like to know is do I need to add DH1: and DH2: to the list, as they are on the same drive, or is it only if you have extra drives called DH1: etc, that you need to alter the list?

Jim Campey
Brentford
Middlesex

You are correct: you do not need to set up Park to deal with more than one partition on the same drive. Each drive only has one set of heads, and once these are parked it's safe.

Incidently, A590s are now supplied with SCSI drives that do autopark. Any SCSI drives you buy to add on to the A590 as external drives will autopark, so you shouldn't ever have to worry about changing the Park setup. ***JR***

DIFFERENT PERSPECTIVE

Has anyone at Commodore realised what problems the lack of a numeric keyboard on the A600 is likely to cause? A lot of existing software already utilises the numeric keypad for some functions. Flight simulators use it to get different views and more importantly, *Deluxe Paint*'s perspective feature is totally inoperable.

Richard Lane
Dixons
Colchester

Looks like you spotted the deliberate mistake there, Richard! Come back A500 Plus – all is forgiven. Although this is mentioned in the manuals, I wonder if Commodore can justify this? ***MS***

UPGRADABILITY

I used to own an A500 and had it for five years. I now want another Amiga but am considering an A1500 and an A2000. Please could you tell me what each machine has to offer over the A500?

Can I get a ROM switcher that will switch between version 1.2, 1.3 and 2.04 for either machine?

I have enough ICs for 13Mb of RAM, can you recommend a board to expand the A1500 or A2000 by 8Mb? The chips are 511000 ICs (I can't remember the access time but I think it's 120ns). I wish to have either a hard drive with 100Mb capacity or a read/write optical drive. Are all makes compatable with the board you recommend?

P Costigan
Plymouth
Devon

The main advantage of the Amiga 1500/2000 is the expandability. The Amiga 500 and 600 are not very expandable.

There are ROM switchers that will take three ROM chips, but I'd think twice about keeping 1.2 – it's obsolete now and won't work with autoboot hard drives.

There are no hard disk cards which will take the RAM chips you have: you will need a separate SCSI controller and memory card to make use of these chips.

The Commodore A2058, Microbotics 8-Up, ICD 2080, Golden Image and almost all the other RAM cards for the Amiga 2000 (with the exception of the Cortex and Applied Engineering cards) will take these chips.

I would then go for either the GVP or the Commodore A2091 hard drive controller, which are still good buys even if you are not using the RAM slots on the card.

I've tried out a few optical drives with the Amiga, and in general they will work, except you must use 512byte/sector media. Most suppliers (Panasonic in particular) ship 1024byte/sector media by default as it has a larger capacity.

I have not yet been able to get Panasonic 128Mb rewritable Magneto-Optical drives to run on the Amiga. There are problems with the 128Mb media used in the Panasonic and IBM drives at the moment, some drives will not read/write disks used in other drives. It will probably take another month or two for these problems to get ironed out. ***JR***

ALL ABOUT ECS

What do each of the ECS chips do? I have 1Mb of RAM in my machine, 512K of which is a trapdoor expansion. Do I have Fast RAM or Chip RAM? Would having no fast RAM affect games, and what is it used for? If I am upgrading to 2.04, could I make do with just the Kickstart 2.04 ROM, or do I need the new Workbench too?

Scott Wright
Gwersyllt
Wrexham

There are two ECS chips, Denise and Agnus. These chips control the graphics and sound in your Amiga. The ECS adds several new features and screen modes that were not present in previous chipsets, such as the "productivity mode", and a high resolution mode: 1280x256 or 1280x512. Although you do not need a special monitor to see the 1280 pixel wide modes, you do need a VGA or MultiSync monitor to see the Productivity mode. If you are upgrading to 2.04, you need the entire upgrade kit, including the new Workbench, which will be available for around £70.00 from your dealer. ***TS***

ASSEMBLING TEXT

I am currently writing an assembly language program that involves a large amount of text handling. I have opened a screen and window under Intuition and, using PrintIText(), have managed to

get text on the screen. How can I clear this window of text or just wipe certain sections?

Philip Dando
Ecton Brook
Northhampton

To clear an entire RastPort you could use the SetRast() graphics function. Alternatively you can use the RectFill() function and this would enable you to clear a specified area. Another approach would be to use the complement drawing mode (set the RP_COMPLEMENT flag in the IntuiText structure) because then a piece of text could be wiped out by re-writing it. Since you mention that your program is going to handle a lot of text it might in the long run be better to open a console device – this will allow your program to use sophisticated 'terminal style' text editing and display functions. ***PAO***

A3000 UPDATE



I would like to update my Kickstart and Workbench disks to 2.04 on my Amiga A3000. Do I require a ROM and new disks?

MJ Fuller
Newcastle On Tyne

Go to your local Amiga dealer, who will be able to give you the current version of the A3000 Workbench and Kickstart. (2.04/2.05). ***TS***

NEVER THE SAME COLOUR



When I switch my machine on, all the colours are wrong. The startup screen is pale blue where it should be white and the mouse pointer is black. I get the same effect if I remove all my external hardware.

Steven Cooke
Wigan

The short answer here is something is broken. The question though is, what? My gut reaction tells me your machine is at fault, but it could be your monitor. To check this try hooking the machine to a TV; if you get a perfect display – the monitor is broken, if not it's the machine. The only solution either way is to send the faulty unit to a reputable repairer. Try WTS Electronics at Luton ☎ 0582 491949. ***MS***

WHICH LANGUAGE?



I have been programming for nine years, first on the VIC20, then on the C64. In the latter years I used 6502 assembler wrapped around a Basic framework (writing utilities mainly). I bought a second-hand Amiga A500 seven weeks ago and now feel like a beginner again. I have seen references to AMOS, C, ARexx etc, but not having knowledge of these languages I cannot make a choice.

If AMOS is a form of Basic, what advantage is there in buying it when I already have the AmigaBasic that was supplied with the machine? Also, I'm spending a lot of time with the AmigaDOS script language – can I write real programs with it?

Roger Harris
Erdington
Birmingham

The AmigaDOS script language is not suitable as a general programming language – it simply isn't powerful enough. I also wouldn't advise you to take an interest in ARexx yet because while it is usable as a general purpose language its main advantages and use stem from its specialised communication-link facilities.

The Basic supplied with the A500 is fine for you to start with and, as you have some Basic experience, you'll find it quite easy to come to terms with. AMOS is an excellent Basic style language with a good interface to things like Amiga graphics, but I'd stick initially to the Basic which came with the machine because, since you are interested in utility programming, you may find that you wish to move to a non-Basic language once you've coped with the initial Amiga learning curve hurdles.

The language of choice on the Amiga is C and there are a number of reasons for this: a lot of the Amiga's operating system was written in C and so most of the official Amiga system documentation was written with C programmers in mind. It is also a small language which is reasonably easy to learn. Having said that I ought to point out that whilst C itself may not present many problems – the Amiga itself will! The operating system is very complex and it will be unlike anything that you've dealt with in the past. There is a lot to learn and, to be honest, you, like the rest of us, will be likely to feel like a beginner for a couple of years at least. Good documentation is essential and eventually you'll need the Addison Wesley *ROM Kernel Manuals*, and the Bantam Books AmigaDOS manual. You'll also need a general C book (*The C Programming Language* written by Kernighan and Ritchie and published by Prentice Hall is a must) and one or two of the 'softer', tutorial-style, Amiga orientated C guides will not go amiss either – have a look at some of the offerings in your local bookshops or computer shops.

If you do decide to learn C, and want to make rapid C progress, I'd advise you to steer clear of the public domain C offerings and go for a good commercial C compiler such as *Lattice/SAS C* – you wouldn't regret it because the package, and the documentation, is brilliant (you will however need to get a second drive to avoid large amounts of disk swapping). ***PAO***

JARGON BUSTING • JARGON BUSTING

Assembly language – The programming language which is native to a particular processor. Assembly language is written as a series of short words known as mnemonics – these are translated directly into numbers for direct processing by the computer's micro-processor. Writing in assembly language ensures that a programmer can produce the most efficient and speedy code.

Basic – Beginners' All-purpose Symbolic Instruction Code is a high-level programming language, much favoured by micro-computer users. It combines power with ease-of-use. A popular version of Basic on the Amiga is AMOS, which makes it particularly easy to deal with graphics.

C – A compiled language designed primarily for systems programming. It was used to write much of the Amiga's operating system, and is used in the writing of many Amiga applications.

Genlock – A way of slaving one video source (eg Amiga) to another (eg video tape) in order to synchronise their signals to allow stable wipes, mixes and other effects including overlay between the two sources.

START UP VIDEO



I would like to get into home video production. I understand how a genlock works for titling purposes, but what are programs such as *Scala* used for? Are there any books I can obtain to help me start up in this area of Amiga use? How good is Gold Disk's *Video Director*, and which genlock below £200 is the best one?

Philip Cheshire
Rotherham
South Yorks

Home video production can encompass quite a few things – recording, editing, sound and graphics – the Amiga being just part of the video-makers tool kit. Programs such as *Scala*, *Home Titler*, *TVText*, *Broadcast Titler*, *ProVideoPlus* and others (including *Deluxe Paint*) all make life easier for the video maker by allowing graphics, including titles and animations, to be prepared and played back. By feeding the Amiga output through a genlock these graphics can be recorded to video tape, either mixed with video or on their own. Such programs are the graphics producer's stock-in-trade.

As for books, unfortunately no, I can't think of any. In fact, I often look in my local library and bookshops for books about video and they are usually out of date or either so general or so technical as to be of little use. I suppose this is inevitable in these times of rapidly changing technology.

Like most of us, you'll have to pick up your skills the hard way – through experimentation and wide ranging reading, from *Amiga Shopper* through to video magazines. Unless someone feels like paying me to write a book, of course! Alternatively, there are a number of video tapes available which deal with Amiga and video – check out the adverts in Amiga magazines – even American ones, as some of these tapes are available in PAL format.

From the reviews I've seen on *Video Director* it would appear to be a very good buy – if you have the right video equipment to go with it. Personally I've not had chance to use it yet, so I can't comment from experience, though I understand that it isn't completely frame accurate and that it can only do assembly editing, rather than the more flexible insert method.

Regarding genlocks, there's not too much choice below £200. For features there's the RocGen Plus, which has improved since I reviewed it. There's also the tried and trusty Rendale 8802, the MiniGen and the original RocGen. Any of these will be sufficient for home video work, though I'd go for either the Rocgen Plus (which also has cross-fading and signal selection) or the Rendale as both of these pass the RGB video through to your Amiga RGB monitor, which is a very handy feature if you still want a clean RGB screen to work on, rather than a fuzzy composite one. ***GW***

MODULAR C



I am trying to write a modular C program but although I can create individual objects and link them together

continued on page 44

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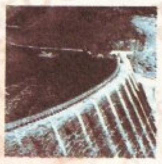
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making them work in harmony is another matter. So, why and when is the extern keyword used? If I have a header with defines and structures in it how can I include it in each module without getting multiple definition errors? Also, is there a linked list that contains all of the Amiga system's assigned device names?

Graham Allwood
Knaresborough

The extern keyword is used to tell the compiler that the item in question has been defined elsewhere and you'll find reasonable explanations of extern use in most general C books. Basically you need to define the items in just your main program module and then use extern declarations in the remaining modules. With things like global variables you can use a preprocesssor trick so that the SAME header serves both purposes – look at this header example:

```
#include <exec/types.h>
#include <exec/memory.h>
#include
<intuition/intuition.h>
#define SCREENPLANES 3
#define SCREENWIDTH 640
#define SCREENHEIGHT 256
BOOL allocate_resource ↵
(UBYTE function_number);
void ↵ deallocate_resource ↵
(UBYTE function_number);
struct Screen ↵
*OpenScreen(struct ↵
NewScreen *);
struct Window ↵
*OpenWindow(struct ↵
NewWindow *);
#ifdef ALLOCATE_GLOBALS
    #define PREFIX
#else
    #define PREFIX extern
#endif
PREFIX struct IntuitionBase ↵
*IntuitionBase;
PREFIX struct Screen ↵
*global_screen_p;
PREFIX struct Window ↵
*global_window_p;
PREFIX BOOL global_exit_flag;
```

If I define ALLOCATE_GLOBALS prior to including the above header it will generate code lines such as:

```
BOOL global_exit_flag;
```

If I don't define ALLOCATE_GLOBALS the same header generates the equivalent extern references, for example the line just mentioned becomes:

```
extern BOOL global_exit_flag;
```

It's this later form that would be used in all modules except one. The advantage of this approach is that you only need to maintain one header file rather than have separate files for variable definitions and variable declarations.

On your last point – there is a structure, called DevInfo, that AmigaDOS uses to maintain a list of all known device and disk volume names and you'll find details in the Bantam Books' *AmigaDOS Manual*. ***PAO***

SHARING IT OUT

I have an Amiga A500 Plus with a ROM sharer which is activated using the TAB key during switch on, or after a re-boot. Normally it just boots Kickstart 2, holding the TAB key down forces the machine to start with Kickstart 1.3. I have an A590 hard drive which I would like to set up so I can use both operating systems. I suspect I may have to set up another partition which will sense that the Amiga is booting with the 1.3 ROM when the TAB key is pressed and boot Workbench 2.0 if not.

John Walker
Gateshead
Tyne and Wear

The simple answer is that you can have two partitions on your hard drive, but this is not necessary, The Eclectic Startup-sequence in *Amiga Shopper* 16's AmigaDOS column will do the job for you.

Alternatively, you can use the software supplied with your A590 to set up two partitions – however, this will destroy any information already stored on the hard disk. In this case you should copy Workbench 1.3 to the first partition and Workbench 2 to the second one. When Workbench 2 starts to boot, hold down both mouse buttons and select the appropriate partition from the boot menu. Workbench 1.3 should boot normally by holding down the TAB key. You'll find more details on the boot menu in the *Little Blue Workbench 2.0* book, which you'll find in our offer pages or down at your local library. ***MS***

FINDING FAULT

Is it possible to get an A500 Diagnostic system? I have phoned a few Amiga repair places, but they all seem to use a system costing £5000. Is there anything cheaper? Please don't suggest diagnostic disks because the Amiga might be working enough to load the disk.

Chris Palmer
Brighton
East Sussex

A hardware solution would be very expensive indeed, and would not really be necessary. A disk based diagnostic program would work fine, as once the diagnostic program had loaded it would be able to check all of the Amiga's functions, such as the disk drive and ports. This is certainly the cheapest way of doing this. I would suggest you look at some PD libraries to see if there is such a program available. ***TS***

TOO BIG TO HANDLE



My problem is that I want to output a file in PostScript format using either *Professional Page 2.1* or *PageStream 2.1* so that I can transfer this file to a PC formatted disk and then print it out on a PostScript laser printer connected to a PC (which is 30 miles away).

I have saved a *Professional Page* document to hard disk as a PostScript file, but if the document includes a bitmap graphic the PostScript file becomes too big to copy on to an 880k Amiga disk, let alone a 720K PC disk.

So how do I get my PostScript file from the Amiga to the PC? And which PC program to I use to send the PostScript file to the laser printer?

RS Jeffery
Castle Donington
Derby

There are several ways, although the PC will need to have a hard drive whichever way you do it.

The quickest and easiest way is by telephone, provided the Amiga and the PC both have a modem attached. If you're not into comms then this is probably not a good idea as it'll take a while for you to learn how it's done. It's not a particularly difficult job to accomplish, it's just that anything new takes a while to master.

JARGON BUSTING • JARGON BUSTING

Bitplane/bitmap – A bitplane is an area of memory where every binary bit corresponds to a pixel on the screen. One bitplane represents a monochrome image, several can be overlayed (a bitmap) to represent a colour image.

PostScript – A powerful mathematical langauge used to describe graphics and text images to compatible printers. Because it does not rely on a pixel system, objects so described can be scaled and rotated without distortion or loss of detail.

Script – Meta-AmigaDOS command built from other AmigaDOS commands. More usually referred to as a batch file on other systems.

Shell – A method of communicating with the Amiga's operating system via the keyboard rather than the more usual mouse and windows method of Workbench.

Sprite – A graphical shape, moved as a whole around the screen. Some sprites are manipulated by the Amiga's blitter, meaning that they can move very smoothly and rapidly, without erasing the information beneath them as they travel across the screen.

EMULATING THE ARCHIE

I am currently thinking about what A-Levels I should take and one of the options available to me is A-Level Computing. I have had an Amiga for many years now and I'm very satisfied with it, but unfortunately my school only has Archimedes computers. Can you please tell me whether there is any sort of emulator available which will enable me to run Archimedes software on my Amiga. If so, how much does it cost and where can I buy it from?

Gary Chessun
Uxbridge
Middlesex

An Archimedes emulator for the Amiga? Now there's a novel idea. Although it pains me to admit it, it has to be said that a standard Amiga isn't really capable of emulating the Archimedes. The Archie's RISC-based processor is considerably faster than the Amiga's poor old 68000, so even if someone managed to implement the RISC instruction set, the speed of the emulator would be very, very slow indeed. All you can really do is use Amiga-based applications and then transfer your work files to the Archimedes. ***JH***

You could try compressing the file using one of the standard shareware archiving programs like *Arc*, *Zoo*, *Zip* or *LhArc*. There are PC equivalents of these programs that will de-archive files archived on the Amiga – although the programs themselves are PC and Amiga specific, the archive data format is standard so files are portable. However it is unlikely that any archiver will be able to compress the bitmap part of the file by much, so you may still be left with an archive that won't fit on a 720K floppy.

What you need is a program on the Amiga that will split the PostScript file into 720K (or smaller) chunks, and a program on the PC that will join them all back together again, thus perfectly re-creating the original PostScript file. Such programs exist, they are called Splitz and Joinz and they come as part of ASDG's *Art Department Professional* package. Amiga, MS-DOS and Macintosh versions are supplied.

The easiest way to send the file from the PC to the laser printer is via the MS-DOS command line. Something like COPY DRIVE:PATH\FILE LPT1: will do the trick. If you want to load the PostScript file into a PC DTP program and then print it, you should produce an EPS (Encapsulated PostScript) file on the Amiga. ***JW***

MAKING SCRIPT FILES

How do I set the script flag on a file and where does it have to be to execute if you just type the name into the shell and press [Return]?

Also, I want to move on to Pascal – is there a public domain Pascal compiler available?

Chris Mot
Kent

To set the script flag use the AmigaDOS 'Protect' command with the +s flag option like this:

```
protect df0:filename +s
```

As long as the file in question is in the search path AmigaDOS will find it and execute it when you type its name. There is a public domain Pascal compiler available – it is called PCQ and you'll find it in most PD libraries. ***PAO***

AMIGADOS UNLIMITED

a) How do I get the Shell to work from RAM so as not to insert the Workbench 2 disk again, so as to edit other disks copy, format and so on?
b) How do I add sound to my *DPaint* anims? Preferably using something in the PD as I am on a very tight budget. Do I need any extra hardware? Is there an animation and sound package as good as *DPaint III* even at full price?
c) I think my animations are pretty good, how do I go about getting them placed in the PD?

A Graham
Benwell
Newcastle-upon-Tyne

a) This is quite easy to do but it will take some time because there are quite a number of files to copy across – even with AmigaDOS 2. (Editorial note: the advice given here is for Workbench 2 only). The simplest solution is to insert the following two commands into S:User-Startup:

```
FAILAT 21
SPAT RESIDENT C:#?
SPAT RESIDENT
SYSTEM/~(#?.info)
```

The second command will produce a slight error (Object is not of required type) but this is not important. This will add all the AmigaDOS and system commands to the resident list. A slightly better solution would be to make all the commands resident in turn. You can use a couple of simple commands like this from the Shell:

```
LIST >T:Temp C: LFORMAT
"RESIDENT %S%S"
LIST >>T:Temp SYS:System
LFORMAT "RESIDENT %S%S"
ED T:Temp
```

This will bring up a script which will look something like this:

```
RESIDENT C:Assign
RESIDENT C:Copy
RESIDENT C:CPU
RESIDENT C:LoadWB
RESIDENT C:MagTape
```

You should search through this list and delete the lines containing commands you don't want to make RAM resident: LOADWB, MAGTAPE, CPU, SETMAP etc. Once you have done this, you should copy the file back to floppy disk like this:

```
COPY T:Temp TO S:BigDOS
```

and then edit the User-Startup to read:

```
EXECUTE S:BigDOS
```

b) I don't know of any PD programs that will do this, but there are certainly commercial animation sequencers such as *The Director* and *Fantavision*. Electronic Arts has its own *DPaint* compatible animation system called *Deluxe Video III* which supports sound and animation.

c) You can get your animations in the public domain just by sending a copy to a couple of the larger PD software houses. However, I would advise anyone wishing to do this to include a READ.ME text file stating the work is: a) Original and b) Freeware. Placing something in the public domain allows people to do what they want with it because you relinquish your copyright. By making work Freeware means you retain copyright, although the software can be distributed freely. Also note, you may have to acknowledge the producers of any animation players etc which you used in the production of your work. ***MS***

MORE PEN PAL FONTS

Simple question. Can you add one set of fonts on one disk to a set of fonts on another?

I use *Pen Pal 1.4* and find it an excellent word processor. The resident font list is a bit limiting, however, so I end up using the Workbench font list via the Change Font List feature.

I would like to use both lists of fonts in one document, but it seems *Pen Pal* won't let me.

Programming is still a mystery to me, but I read in your magazine about copying files from one disk to another, so I tried a few commands in a Shell and managed to copy the Workbench fonts on to the *Pen Pal* disk. The font list displayed all the fonts combined, but I found I couldn't use them.

Can you help?

T Devil
London W13

What's happened is you've copied all the '.font' files on to the *Pen Pal* disk, but you've neglected to copy the fonts themselves. These are the directories, and the contents of those directories, in the FONTS directory on the Workbench disk.

The command you need to issue from a Shell is :

```
COPY FONTS: PENPAL:FONTS/ ALL
```

assuming that you have booted from Workbench and your *Pen Pal* disk is named PENPAL. (If it's named something else, replace the PENPAL bit with whatever its name is).

Keep in mind that the fonts on a standard Workbench 1.3 disk take up about 100K of disk space. ***JW***

USING SPRITES

I am in the process of producing a computer game in assembler. I know I don't want to use the hardware sprites, but I don't know how to use any others. Are there any books or PD programs that could help me?

Josh Lury
Melbourn, Near Royston
Herts

The Amiga supports two types of sprites, hardware sprites and BOBS. Hardware sprites are subject to some basic limitations; you can only have eight of them, they can only be 16 pixels wide and have three colours. Using some of the more advanced features of the sprite hardware, you can make 16 colour sprites, by joining two together. Your other option is BOBS.

A BOB is a "Blitter object", quite simply, it is a small graphic which the Amigas blitter will place to the screen. This is far more complex for the programmer, as you will have to "remember" what is on the screen behind the BOB, so that when you move it, you can repair what was underneath it. You don't have to worry about this with hardware sprites, as the Amiga treats them as separate little screens all of their own. As a final note, you can actually place sprites to the screen yourself using "move" instructions.

The proper book to have would be the Librarys and Devices book, edition two, or the "Libraries" book edition 3 from Addison Wesley. I'm afraid you might find that book rather heavy going, and expensive, but it will teach you proper programming

SEIKOSHA NUMBER

I recently bought a Seikosha SP-1200AS printer. I have no instruction manual, and no driver. Can you tell me how I can get in touch with Seikosha?

Peter Betts
Upavon
Wiltshire

Seikosha (UK) Ltd is on 0753 685873. ***JW***

practices on the Amiga which will help you to write good programs which are compatible with all Amigas; past, present and future. ***TS***

EXTENDED GRAPHICS

I have recently bought an A500 Plus and am very impressed. However, due to limited space I am having lots of problems with the TV modulator. The obvious solution would be to have a cable from the back of the computer to the modulator and an extended audio lead, thus the modulator could be placed out of sight. Could you either tell me where I could get a suitable cable, or give me instructions on how to make one up?

Could you also tell me where I can obtain the Amiga Basic language which used to come with WorkBench 1.3?

PB Cooper
Macclesfield
Cheshire

There's another obvious solution to your modulator problems – get a bigger desk! But seriously, if you want an extender cable you'll simply need to call Trilogic (☎ 0274 691115) and ask for a Modulator Extension Lead. The company usually advertises in *Amiga Shopper.*

AmigaBasic is no longer available since WB2 was issued. I suppose it was getting rather long in the tooth, and it wasn't all that thrilling in the first place. Out of curiosity, I dug my old 1.3 Extras disk out and tried to run a few Basic programs, but no dice! But this may be because I have an accelerator with 32-bit RAM fitted to my Amiga 2000, not because I'm running WB2.04, since AmigaBasic will run if fast RAM is disabled (using NoFastMem), but the speed of my machine was dramatically decreased – almost to a standstill. Fitting a ROM sharer and a 1.3 ROM might be a sensible alternative if you really want to run Basic on your Amiga 500 Plus. Try advertising for the software in the Reader's Ads, as I'm sure there must be plenty copies of WB 1.3 gathering dust out there. Alternatively, you could try learning ARexx, which is the programming language now supplied with the newer DOS versions, or try AMOS or another basic such as GFABasic. ***GW***

SUPER DENISE

I would like a flicker free picture in high res mode on my A500. If I purchase a high-res Denise chip and a Multisync Monitor, would I be able to obtain this? At around £40 for the chip it would seem a good investment, but am I overlooking something?

F Wheeler
Scunthorpe
South Humberside

There are two things to be aware of if you are thinking about a Super Denise chip.

Firstly, it can only be used under Workbench 2, so you will have to upgrade your Workbench and Kickstart ROM as well.

Secondly, it does not remove the flicker from standard Amiga graphics modes. All it does is provide new flicker-free modes for the system, but unless your software is configured to recognise these modes, it will continue to use the standard, flickery, graphics modes. If your software supports productivity mode, or if it can be forced to run on the Workbench screen (which can be set up as a productivty screen) then you can run flicker free. ***JR***

JARGON BUSTING • JARGON BUSTING

Contiguous memory – A section of memory all in one block, with consecutive addresses from beginning to end. Because of the Amiga's multi-tasking nature, it is possible for memory to 'fragment' if several small programs are loaded. You may have, for instance, 200K free, but this could be in several smaller chunks, meaning that you cannot load a program or piece of data that is 200K in size.

Editor – An editor, like a word processor, is a means of entering text into the computer. Programs are written with an editor before being turned over to a compiler or interpreter.

Fast RAM – Any extra memory which is not Chip RAM. The custom chips can't access it, and since such accesses to Chip RAM can block out the central processor and slow down its own accesses, Fast RAM is faster.

Format – A process of preparing a floppy disk so that it can be used by the Amiga.

Intuition – The part of the Amiga's operating system concerned with window handling, menus and so forth. It interprets user input from the mouse and sends information to the relevant windows via the Intuition Direct Communication Message Ports.

PCMCIA – An interface standard gaining prominence in the IBM PC world and now being taken on by Commodore with its new range.

PRINTING DOC FILES

I recently bought *A68k* from a PD library. Can you please tell me how to print out the document files? I have tried loading them into NotePad and *ProWrite* but this doesn't work. Also I've been using Basic for about four months and would like to move to assembler. Is *Devpac 3* best for beginners or will the *A68k* assembler do?

Simon Hull
Whitney Bay
Tyne & Wear

You need to use an editor that can read/write ASCII text files of any length – ED or MEMACS (which is supplied on the Amiga's Extras disk) will do the job.

The *A68k* assembler is fine if you know what you are doing but *Devpac* provides a much friendlier, and more complete environment, and you also get all the necessary Amiga header files.

To be honest however I think that, with only four months of Basic experience, you are going to find assembler programming on the Amiga extremely difficult whichever assembler you choose. ***PAO***

PC TO AMIGA

I have an Amstrad PC and Amiga A500 and would like to print files from PC *WordPerfect* on the Amiga. Ideally, I would like to use the Amiga as a printer server. I have tried to achieve this via AmigaDOS but to no avail. I can convert the *WordPerfect* file to ASCII and transfer it serially using a time delay between each character – but this is very slow.

Do you have any suggestions apart from using a switch box or throwing the Amstrad away?

Walter Campbell
Perth
Scotland

I think you have answered your own question there, Walter. The best solution is to use a parallel switch box which you should be able to pick up for around £20. You didn't say which Amstrad PC you had, but if it uses 3.5" drives you could copy the *WordPerfect* print files to the Amiga using a PC-Amiga disk bridge such as *MessyDOS*. Even if your machine has 5.25" drives, you could still buy a 5.25" drive for your Amiga.

The cheapest solution however, is to use a serial link. In this case you'll need some communications software at each end – there are plenty of examples in the public domain for both machines. You could start with *NComm* or *JRComm* for the Amiga, there are plenty of other examples for the PC.

First construct a printfile – get *WordPerfect* to print to disk – not the printer. Now hook the two machines together and set a terminal speed of 19,200 baud with 8N1 protocol. You will then be able to send the *WordPerfect* print file to the Amiga using a binary file upload/download such as *XModem* or *ZModem*. When the transfer is completed send the print file to the printer using AmigaDOS like this:

```
COPY PrintFile TO PAR:
```

Do *not* use the PRT: device because this attempts to filter the control codes and it will not give the correct results. ***MS***

STILL AT C

Thanks for answering my query concerning error messages with *NorthC* and the graphics/intuition libraries (Amiga Answers issue 15). I am sorry I wasn't more specific but this time I have included the program listing that causes the errors. I know it's a poor program but I can't see the point of writing anything better if I can't even get this to compile.After reading the *Compiling the PD C's* article I now suspect that the problem lies with STRPTR not being defined.

Mick Scully
Radcliffe
Manchester

Sorry to hear about your *NorthC* problems but having seen your code I should be able to iron out some of the existing difficulties. The good news is that, in a general sense, your code is OK. The bad news is that an awful lot of slips have been

made which seem to stem from some fundamental C misconceptions.

On the header file front the immediate errors are not caused by STRPTR not being defined. Your program is including the intuition.h header and this will automatically include the exec/types.h header (which contains type definitions for things like STRPTR).

One area however where you've clearly gone astray is in not realising the importance of the case of your variables and structure references. For example your program includes a line which reads:

```
struct intuitionbase ↵
*intuitionbase;
```

There is no structure called intuitionbase – its name is IntuitionBase. Furthermore you *must* define the pointer to this structure as IntuitionBase (the reasons are related to what happens when linking with amiga.lib).

Your program also includes statements such as:

```
struct window *cashwindow;
```

and again this structure does *not* exist – it is Window, rather than window, structures that are defined in the intuition.h header file.

Similarly function names are case sensitive. You have used statements such as openwindow(), openlibrary(), closelibrary() and none of these functions exist. The names you should use for these functions are OpenWindow(), OpenLibrary(), and CloseLibrary(). Another area where exactly the same faults crop up is your use of terms like null, smart_refresh, windowclose, and activate. None of these things are defined in the system headers – they should be NULL, SMART_REFRESH, WINDOWCLOSE and so on. You have, incidentally, also wrongly defined the flags field in the NewScreen structure and declared a NewScreen pointer where you should be creating a statically defined instance of a NewScreen structure. The net result is that, as your program stands, it contains more errors than lines of code, so it is hardly surprising that *NorthC* was getting confused!

From your code it also looks as if you are expecting the scanf() and printf() functions to read from and print into your window. They won't... these functions are designed to read and output using CLI/Shell type I/O handles – Intuition Windows use a totally different approach.

Having said that don't get disheartened because we all go through these types of 'learning curve' stages. Your code ideas on tax calculations etc, look OK and I think the best idea is to forget about Intuition windows and concentrate on getting a conventional scanf()/printf() form of your program working – that way you'll be able to read and write data using the CLI/Shell window which will keep things simple.

At the same time you ought nevertheless to try creating some Intuition programs which just do simple things – open a screen, open a window etc. Have another look at the *Compiling the Amiga PD Cs* (*Amiga Answers* issue 11) and experiment with the examples. ***PAO***

WORD PRO QUANDARY

For a year or so I've been using the shareware *TextEngine* text editor, but now I feel it's time to buy a proper word processor.

A 'word publisher' would be ideal, and at the moment *Pen Pal*, *Wordworth* and *Excellence!* are on my list. Reading your round-up in issue 6 just made it more difficult to choose!

I'm also considering *Final Copy*. Is it as good as it claims to be? Wading through difficult manuals is not my idea of fun so I would like the program to be user-friendly. Would I need more than 1Mb to print more than a few pages of pictures and text?

Niall McCann
Norwich

If a 15-page article and a review of *Final Copy* in issue 15 can't help you decide, what can? Whatever you decide, you will require a lot more than than 1Mb of memory if you want to have lots of pages with lots of pictures on them.

Picking up on the one hint you gave me as to your requirements, *Pen Pal* and *Wordworth* both have 'on-line help'. This means you can get help on how to use the program from within the program itself. But on-line help is no replacement for a good manual, so it's just as well that both the *Wordworth* and *Pen Pal* manuals are well written and excellently presented.

If you can't be bothered to learn how to use a tool, then you can't expect to produce good results with that tool unless your name is something like Merlin or Rincewjnd or Gandalf. ***JW***

CONFUSED A600

I have bought an Amiga 600, and although it worked fine at first, after a few hours when I reset it, it scanned both the drives for a disk and then paused before showing the purple screen. If I reset and held both the mouse buttons down, the drive selector screen shows me df0:, df1:, df2:, df3: and cc0:. What worries me is that I don't have df2: *and* df3:! From the Workbench I get two icons saying df2:???? and df3:????. I think it might be a dodgy Kickstart chip. I have some more questions about the A600...
a) Is it expandable to 2Mb or 10Mb of RAM?
b) Are PC credit cards compatible with the Amiga 600?
c) Do you know if Datel will be bringing an Action Reply cartridge out for the Amiga 600?
d) Could I use a PC-IDE hard disk with my Amiga?

R Longworth
Poulton, Lancs

I would suspect your problem lies with the extra disk-drive, causing some confusion for the Amiga. It is unlikely to be a fault with the Kickstart, and if it worked fine initially, I would think that the expansion drive has upset something inside the Amiga 600. To answer your other questions:
a) The Amiga 600 is in fact expandable to 10Mb theoretically, 2Mb of Chip RAM and 8Mb of Fast RAM. Commodore is going to produce an A601 which will fit in your A600's trap-door port giving you 2Mb of Chip RAM total and a real time clock. You can add 4Mb of Fast RAM through your credit card port and it is likely that a third party add-ons company, if not Commodore, will give you an add-on allowing the full 10Mb of RAM.
b) The A600 credit card port is a PCMCIA port. It should be possible to simply plug in *any* PCMCIA card. Unfortunately they are still very expensive, but as they make themselves popular in the PC world, the prices should come down. You can now actually buy modems on a PCMCIA card, and Intel produces a 20Mb FlashRAM card, although I am not sure if the Amiga will support all of this! If you are going to get PCMCIA cards, I recommend you get RAM cards, as they are easy to use.
c) When I spoke to someone at Datel, I was told that the compnay was not planning on producing one at the moment, but an A600 version had not been ruled out.
d) This depends on your Kickstart version. Select "About" from your Workbench menu. If your Kickstart is 37.299, then you cannot without replacing your Kickstart also. If your Kickstart is version 37.300 then you are theoretically able to simply plug an IDE drive in. This is not recommended, as you will invalidate your guarantee. Commodore will be producing an Upgrade kit that will allow you to add a drive to your Amiga. Ring Commodore on ☎ 0628 770088 for further information. ***TS***

PAGESTREAM STRIKES

You will find attached a letter I want to publish to my diving club. As you can see, part of the text is missing. It doesn't print like this all the time, there have been times when the first sheet prints OK but subsequent sheets are faulty.

I use *PageStream* and *Protext* on my Amiga 500 Plus. It is expanded to 2Mb, has a second drive, and my printer is a Star LC24-200. The printer works fine with *Protext* and *Deluxe Paint*, leaving me to suspect that it must be something to do with the way *PageStream* operates.

AD Smith
Walsall
West Mids

Your print-outs show the classic symptoms of what happens when DTP programs run short of contiguous memory – bits of the page going missing. The reason it doesn't happen all the time is that sometimes memory is less fragmented, so it can form the high-resolution A4 bitmap OK, but at other times there's not enough memory all in one chunk to do the job properly.

If you want to test this theory out, print your page at a lower resolution (say 180 by 180 dpi), and you'll find that the problem completely goes away. But the output is not so good, of course.

The answer is more memory. One megabyte will probably sort this little problem out, but if you are using *PageStream* regularly I'd recommend you go for as much more memory as you can afford. ***JW***

TELLING FIBS

My Amiga is not formatting disks to a full 880K. I've tried various programs such as *X-Copy*, *CLI-Mate* and Workbench, but every time the disks are formatted with exactly 856928 bytes. My external drive does the same, so it can't be a fault in the internal drive. When I use INFO from CLI, it says the disk has 880K, CLI-Mate says it's not. When I try to copy an 860K file I get a disk full message.

Kevin Howell
Brislington, Bristol

This is a complex one to give a short answer to, but very briefly – there is nothing whatsoever wrong with your equipment, it just works like that. The long answer goes something like this...

There are two mainstream DOS Shells for the Amiga – the official one now at version 2; and the ARP (AmigaDOS Replacement Project) DOS created by the Microsmiths. Both of these have an INFO function, but return different and often confusing values for the amount of free space on a disk. There are two camps: some (Amiga) say 880K per disk, the others (ARP) 838K.

Here then to set the record straight are the facts.

- ***FACT***: Amiga floppy disks, formatted by the system have 512 bytes per sector usable by DOS. There is no denying this – it's a nice binary number and, as far back as I can remember, FM (frequency modulation) and MFM (modified FM) formats have always used some multiple of 2^n bytes: 128, 256, 512 and so on.

- ***FACT***: There are 11 sectors per track, 80 tracks and two sides to every disk. 1760 possible sectors in all: 1760 * 512 = 901120 bytes or approximately 880K on a disk.

- ***FICTION***: Every block on a disk contains 488 bytes of data. This implies the sector format is also 488 bytes which is ridiculous.

- ***FICTION***: The maximum data storage on a disk is 838K (from the 488 bytes per sector premise). Since the first premise is wrong and derivations made from it must therefore, also be incorrect. The figure in contention is bytes per block. Some say 512 others, 488. Commodore has been known to quote 488 – although it depends who you talk to, and in what context. This is the crux of the argument.

The 488 byte figure is arrived at from the capacity of an AmigaDOS DATA block. Avoiding the technicalities for a moment, every data block has 6 longwords – 24 bytes – reserved for DOS. Subtract 24 from 512 and you get: 488 – the magic number.

This is further complicated because for every file created on an Amiga disk by AmigaDOS, at least one complete block is reserved for use by the system. It's called the file header or file info block (FIB) and occupies a complete sector – 512 bytes in effect.

Now let's say you create a file which is one byte long. How many blocks does it take?

- One sector for the file header block plus one sector the data block = two 512 byte sectors or 1024 bytes or 1K

Therefore, since there are 1760 possible blocks on the disk, the maximum number of one-byte files you could possibly ever store on an 880K floppy is 880. Slightly less in real terms since DOS reserves a few blocks hither and thither for other functions – such as the boot block, root directory and bitmap.

It might seem fair from this argument to suppose that a single file could occupy the entire capacity of the disk. As I've already said, data blocks contain 488 bytes of user data plus 24 bytes of DOS information. From this premise you could be forgiven for thinking that 488 bytes per block is more accurate (1760 * 488 = 838K).

Even if you did have the full disk to yourself, the file header block can only hold a fixed number of block references. If this number is exceeded, DOS creates another subsidiary block called a file list block – which takes up another 512 byte sector – and starts filling that. If that gets saturated, then another list block is created until the disk gets filled. In practice, the largest single file that can be stored under conventional DOS is just over 820K an extra 18K is taken by DOS. FFS is better – around 860K in practice can be stored as on contiguous file.

Where do directories fit into all this? Well every directory takes at least a single sector for its own use – 512 bytes a piece. 200 odd bytes are reserved in the middle of the directory structure for the hash table. (This is what allows AmigaDOS to locate a file or sub-directory very quickly – by best guessing the name from a hash calculation and then locating it by nipping down a linked list).

Each directory takes exactly 1 x 512 byte sector which can be proven simply by formatting a disk, getting its info, creating a single directory and getting info again. In theory therefore, it should be possible to create 1756 user directories on a disk – 1760 sectors minus two for the boot blocks, minus one for the bitmap and one more for the root directory. 1756 * 512 bytes = 878K! Needless to say though, there wouldn't be any room for anything else.

1760 sectors are divided as follows...

- Two sectors for the boot block: side 0, track 0, sectors 0 and 1.
- One sector for root block: side 0, track 39, sector 0.
- One sector for the bitmap: starting at side 0, tack 39, sector 1.
- 1756 sectors for DOS and user information.

To calculate any block reference from track, cylinder and sector information you use the following formula. Note AmigaDOS numbers the first track one, not zero:

Block = (track+1)*22+(side*1) +sector

MS

ACCELERATORS AND RAM



I am considering buying a VXL-30 accelerator for my A1500, but I have been told that the 32-bit RAM board is not available. I also own a 105MB GVP Impact II hard disk with 2Mb of 16-bit RAM on board. Would it be possible to replace the 16-bit RAM with 32-bit RAM instead, and would the VXL-30 recognise it as 32-bit RAM?

I have seen an advert for the A386SX bridgeboard, would the VXL-30 speed the bridgeboard up at all? Also, would it recognise a PC super VGA card plugged into one of the A1500's PC slots, and if so, would I need a MultiSync monitor to display the screen?

Robert Downs
Blackpool
Lancs

It is not possible to replace your 16-bit RAM on the GVP card with 32-bit RAM. The reason for this is that the GVP card is a 16-bit card, as it interfaces with the 16-bit 68000 processor in your A1500. The only way to add 32-bit RAM to an Amiga 1500/2000 is to add an accelerator card with 32-bit RAM on board.

The problem lies in the fact that your A1500 is a 16-bit computer, and when you add an accelerator such as a 68020 or 68030, you suddenly have a 32-bit processor. This chip then has to slow down to match the A1500 when accessing 16-bit RAM. If the 68020/68030 is to make any use of its 32-bit data bus, then it has to have 32-bit RAM on the accelerator card itself. This is not a problem on the Amiga A3000, as that is a 32-bit computer and has 32-bit RAM throughout.

Adding an accelerator card to your Amiga would not speed up the bridgeboard at all. The bridgeboard is actually a PC 386SX in its own right, and is a totally separate computer to your Amiga. Special electronics and software handle communications between the PC side and the Amiga side. You could plug a SVGA card into one of the PC slots inside your A1500, and you would require a seperate SVGA monitor. ***TS***

GETTING ANIMATED



I will soon be updating my A500 to either an A1500 or A2000 and would like to know which would be more suitable for animation, as I don't really know the difference, I'm afraid.

I know I will need a genlock – I wish to mix graphics with Hi-Band U-Matic video – but that's all I am certain of. Can I use a Philips TV (with SCART socket) as a reasonable monitor? Please help as I have not had any useful info from any computer shop staff!

Danny Wiggs
Bradford
West Yorks

There are a couple of subtle differences between the Amiga 1500 and 2000 models. Firstly, the A1500

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JARGON BUSTING • JARGON BUSTING

AmigaDOS – The most basic part of the Amiga's operating system – the collection of programs that take care of the general running of the machine. AmigaDOS concerns itself with device-handling: control of the keyboard, basic screen output, disk drives, printers and so on.

Bit – A binary digit, with a possible value of zero or one.

Bridgeboard – A plug in card released by Commodore for the A1500 and upwards which enables the Amiga to run programs written for the IBM PC series of computers.

Byte – A group of eight bits. The byte is the most common memory unit. Larger units are the kilobye (1024 bytes) and the megabyte (1024 kilobytes).

32-bit Memory – Memory accessed by a processor (68020 and upwards) in chunks of 32 bits at a time, rather than the more normal 16 bits. As a consequence, accesses to memory are much faster.

Genlock – A way of slaving one video source (eg Amiga) to another (eg video tape) in order to synchronise their signals to allow stable wipes, mixes and other effects including overlay between the two sources.



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JARGON BUSTING • JARGON BUSTING

Accelerator board – A device which either includes a central processor like the Amiga's, or a more advanced one in the same range, but operating at a higher speed.

C – A compiled language designed primarily for systems programming. It was used to write much of the Amiga's operating system.

IconX – A handy little public domain program which will enable a Shell script (a collection of Shell commands held in a file) to be executed via clicking on an icon via the Workbench.

Intuition – The part of the Amiga's operating system concerned with window handling, menus and so forth. It interprets user input from the mouse and sends information to the relevant windows via the Intuition Direct Communication Message Ports.

RGB – Red Green Blue – a standard for video signals that provides better quality than composite or Radio Frequency signals.

Shell – A method of communicating with the Amiga's operating system via the keyboard rather than the more usual mouse and windows method of Workbench.

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has two internal disk drives fitted while the A2000 only has one. Secondly, you can't buy A2000s any more (at least not new ones) as they were effectively superseded by the A1500 – which in its early days was a rebadged A2000 anyway. Otherwise they can be considered to be identical machines.

If you buy a genlock which has an RGB pass through then there should be no problems using the Philips TV for monitoring. Most of the better genlocks have this feature as standard anyway, so just look out for it when you are considering your purchase.

I would also recommend that you think seriously about buying a hard disk, extra RAM and even an accelerator, as animation tends to be processor intensive, as well as needing lots of storage space. There's a whole range of new turbo cards which can carry both RAM and SCSI hard drives – such as GVP's G-Force series and the Progressive cards. These devices will seriously increase your productivity, but check with the bank manager first! ***GW***

INTUITION, TOO



I am trying to write a fairly complicated Intuition program using Workbench 2 and am having many problems (even detail and block pen values in the windows do not work). Are there any books on Workbench 2 Intuition programming?

Mark Hayes
Worthing
West Sussex

In your original letter you've asked about so many things that it is impossible to give you complete answers. The bottom line is that things have changed drastically in the Intuition areas that you've mentioned and to sort them out you are going to need the new Workbench 2 orientated *ROM Kernel Manuals*. ***PAO***

ICONX, WON'T X



I am having some problems with AmigaDOS on a disk I am making:
a) When I try to use *IconX*, its window just pops up and goes away.
b) Even though the startup-sequence makes Shell-seg resident and mounts NEWCON:, when I double-click on the Shell's icon, its window appears then vanishes.
c) Can you also tell me what the following are: the Ramdisk.device on my ARP disk; the RAW: window and the devices JH0: and VD0:.

Anon

These are quite common problems and probably due more to Commodore's iffy manuals than they are to user error.
a) *IconX* tries to execute a script of the same name as the icon which called it. Therefore, if you have a project icon, called "BLURB" you must also have a script file called "Blurb" in the same directory.
b) I suspect the reason for this is either that you have not put the System directory on the new disk, or you have not put the CLI icon in the System drawer.
c) The ramdisk.device on your ARP disk is probably one of the several reset-proof RAM disks that popped up a few years ago. Most folk use RAD: these days, it does exactly the same job. RAW: is an AmigaDOS console window (like CON: and NEWCON:) which does not translate and control characters. Once opened, the RAW: window cannot be closed from AmigaDOS. VD0: is "Virtual Disk 0" usually a device name for some recoverable RAM disks; similarly, JH0: is the Janus hard disk – an old Commodore type. These devices only appear on dumb file requesters – that is, those that do not search the device list for mounted drives. ***MS***

AMIGA DIFFERENCES



a) I had previously settled on getting an A500 Plus, but since this has been replaced with the A600 (which reminds me of the Oric Atmos!). I decided on an A1500. I now hear this is to be replaced also. Is it worth hanging on for an announcement about new mid-range Amigas?
b) What are the differences between the A1500 and the A2000?
c) I am interested in programming the Amiga in C, as I am familiar with Ansi C from Unix. Which books do you recommend for both learning about programming the Amiga system and for reference?
d) Where can I get the Commodore include files and how much do they cost?
e) Is *Lattice/SAS C* really worth over £200, or can I get away with using the PD *NorthC* or *Dice*?
f) Is the Microbotics VXL-30 accelerator board any good? Will it cause compatibility problems with Games?
g) If I buy an SCSI controller card, such as the GVP one with a Quantum 105Mb drive, can I add bare SCSI drives to the same controller at a later date?
h) Is there a PD assembler which can assemble 6502 code for porting across to the C64?

Glenn Davis
Swinton
Manchester

a) To be honest, you could wait forever. Commodore will continue to expand and enhance its product range, but we don't know when it would replace the A1500/2000, or what with. If you wish to wait, you could find yourself waiting a very long time indeed. Considering the expandability of the A1500 I would recommend buying one of those now, rather than waiting. Alternatively, you could save up and buy an Amiga A3000 – which is a far better choice, as it is a much faster and more powerful system, which is in fact capable of running Unix.
b) The A1500 has two floppy drives and no hard disk, the Amiga A2000 has one floppy drive and a 52Mb quantum SCSI drive.
c) I recommend you get the official Commodore reference books published by Addison Wesley, third edition. You will need three books, Amiga Reference Manual – Libraries, Amiga Reference Manual – Devices and Amiga Reference Manual – Includes and Autodocs. These are the real thing, and will teach you programming practices on the Amiga that will ensure the best possible compatibility with current and future systems.
d) If you buy a C Compiler such as *Lattice/SAS C*, then these will be supplied for you. If you get a PD Compiler, you will need to buy these from Commodore Developer Support at Maidenhead. Write to Sharon McGuffie, Commodore Business Machines, The Switchback, Gardner Road, Maidenhead, Berks, SL6 7XA. You will need to enclose a cheque for £25 made payable to Commodore Business Machines, and a covering letter explaining that you are buying the "Native Developers Upgrade Kit." This will include the latest versions of the includes, together with some example programs that you can look at.
e) This is a tough one! The answer to this question rather depends on what you are trying do to, and what your budget is. If you want the manuals, and the professional technical

WHY, WHY?



I've got a Canon BJ-10ex bubble jet printer and it keeps printing out the pound sign with two funny characters after it. No, I'm not talking about Little and Large – they're not funny – I mean two 'y' letters with umlauts on them. Then it'll print the number of pounds.

So I get something like '£¨¨47'. I am using the EpsonX printer driver, and the same thing happens with EpsonQ.

R Storey
Eastbourne
Sussex

Sounds like you are probably using the BJ-10ex in IBM mode with an Epson driver.

Whatever it is, what you really need is the proper Canon BJ-10e/ex driver on Jamdisk 5, from *JAM* ☎ 0895 274449. ***JW***

support then I would suggest that £200 is a suitable amount of money to pay for a product such as this. If you are more into learning, and writing some small home programs, then a product such as *DICE* might be sufficient.

f) Any accelerator could potentially produce incompatibility problems – especially with badly written games. If you are going to buy an accelerator, make sure that it has a fall back mode to 68000 so that you can still remain compatible with your old software.

g) You can add up to seven devices to a SCSI controller card without needing to buy further controllers. These can include things such as tape streamers, flat bed plotters, laser printers, hard disks and so forth.

h) There is an excellent C64 emulator available for the Amiga in the PD market. I do not believe that there is a cross assembler that you can use to assemble code for the C64. This is best done on the C64 to be honest. ***TS***

IN THE PICTURE

How do I use *PageSetter II* to produce a 'frame' around a picture so that the frame is filled with one of the fill patterns?

Eric R Billington
Birmingham

You need to do it in three steps. First use the box drawing tool (in the bottom bank of tools in the toolbox, not the bounding box tool in the top bank) to draw the box that will form the outside of the frame. With that box still active, select Fill Pattern from the Draw menu, choose the pattern you want in your frame and click OK. Make sure Wireframe Graphics is toggled off (in the Preferences menu) otherwise you won't see any change on the screen.

Now draw a smaller box inside that patterned box and go through the same steps as above to give this smaller box a solid white fill pattern by selecting the white area in the greyscales section at the top of the Fill Patterns requester.

If you need to adjust the width or height of either of these boxes, do it by dragging the handles around the edges of the box, but remember to hold down the Alt key at the same time as selecting a handle because what you are doing is re-scaling a structured drawing. (If you forget to hold down Alt when you make the box bigger you'll find that the fill pattern won't stretch to fill the new size, it'll remain just as it was before.)

Once your two boxes are perfectly aligned to form the 'picture frame' you require, group them together and select Merge from the Group menu. The two boxes will now become a single structured graphic.

To place a picture in this frame simply draw a bounding box in the white bit and import the graphic.

It might be an idea to save the frame as a page (not a document) so you can import this page (and thus the frame) into any other documents that might need it. ***JW***

OLD FASHIONED TITLING

I have an Amiga 500 and 1084S monitor and I have recently started to get interested in using video graphics to spice up my otherwise boring holiday videos so that I can impress my family and friends. Taking your advice from the July issue I sent off for a copy of *VideoLab* to get started. I also enjoy using *DeluxePaint III* and have produced some worthwhile animations.

But how do I connect my computer setup to my video recorder? Do I have to use the A520 video adaptor or can I hook up with the monitor? Will I have to buy a suitable connector? I would appreciate any help that you can give me.

Les Porter
Pembroke
Dyfed

At its simplest, using your Amiga for video work involves recording Amiga graphics to video tape in between the other sections which you are putting together on your VCR. This means that you have to have both a source video and a recorder, as well as an Amiga. Connecting the video machines together can be as simple as connecting the audio and video inputs and outputs together correctly, but getting pictures from your Amiga is a little more complicated.

Firstly, as only the early Amiga 1000s had a colour composite video output (which meant the computer could be connected to a VCR directly), you'll need some additional hardware to convert the RGB signal produced by the Amiga into a regular video signal. The most basic form for this is a modulator, which provides video and audio outputs that can be used with a VCR. However, with a modulator all you will be able to do is record direct to tape unless you have some form of video mixer.

A more flexible and creative solution would be to use a genlock, which allows you to feed both video and Amiga RGB signals in and get a result of Amiga graphics overlaid onto the video signal. To give you an idea of what this looks like, if you used an Amiga picture produced with *Deluxe Paint* and the background colour was the first colour in the palette (Colour 0) then all the background would be "Invisible" and the video signal would show through instead. Got it?

I am afraid you'll have to spend some money to do achieve this effect – a cheap genlock will cost around £100. Unfortunately you can't just take the video output from your monitor (since it doesn't have one anyway), though it sounds like a logical idea.

So the choice is yours – modulator or genlock. I'd recommend the genlock option myself, for both quality and flexibility. For a little more info see the *Start up video* letter hereabouts. ***GW***

GADGETS AND THINGS

At present I am writing a small database manager in C and am using lots of string gadgets. How can I make the gadgets active without the user having to click into them?

John King
Northfield
Birmingham

There is an Intuition library routine called ActivateGadget() specially designed for this job – usage details are given the Includes & Autodocs ROM Kernel Manual. Your Workbench 2.04 RAD: problem (mentioned in your original letter) is not something I've come across and I think the best idea is to write to Commodore Technical Support to see what the people there say. ***PAO***

ACCELERATOR CHOICE

Having recently upgraded from an A500 to a B2000 with a GVP Impact Series II hard disk card, the next upgrade I require is an accelerator as my main application areas aside from programming are graphics, and in particular ray-tracing. I am working on a very limited budget and was considering going for the Microbotics VXL30.

a) Firstly, I know that the VXL is a piggy back board, so how easy is it to install, bearing in mind that my system is fitted with Kickstart 2 and the ECS? Also, is it easily disabled for compatibility purposes?

b) When purchasing the 68882 will it be necessary to get one with a speed equal to that of the 68030? Could I get a 33Mhz 68882 and use it with the 25Mhz 68EC030?

c) I believe the EC version of the 68030 comes without a Memory Management Unit. Is this correct, and how will it effect the performance of my system?

d) Will the board require faster memory chips to handle the increase in processor speed?

e) Finally, will my intended setup show a major speed increase in the applications I am running, including *Real 3D*, *Imagine*, *DPaint* etc?

Shaun Stephenson
Chester-Le-Street
County Durham

a) You shouldn't have any problems with this set-up, but again, it's best to check with your dealer before buying the card.

b) This rather depends on the accelerator card you buy. It's best to consult the manufacturers to discuss this, but certain cards will indeed allow you do do this.

c) The EC version of the 68030 does indeed not have the MMU. This will primarily only affect you if you do a lot of programming, or are planning on running UNIX, as UNIX requires the MMU to operate. As far as programming is concerned, there are some very useful utilities which help you to debug programs, such as "Enforcer", which make use of the MMU in order to help you see what is going wrong.

d) The board will happily use all of your existing RAM, but the speed increase will be limited, as the memory inside your Amiga is all 16-bit, and is selected to run from the 7.14Mhz 68000, not the 25Mhz

BACK TO THE FUTURE

I have installed version 5.50 of *Protext* on my A590 hard drive, and have been using it for quite some time now. I have always been satisfied with the product and have always considered myself to be fairly proficient in its use.

But I have encountered a problem. Whenever I try to insert the current date, either via the pull-down menu or keyboard short-cut, I find that *Protext* inserts yesterday's date.

Why? And how do I get around this problem?

Andrew Marples
St Albans
Herts

It's a bug that manifested itself on February 29 this year. (Think about it). Return your original program disk to Arnor and the company will upgrade you to the current (and fixed) version free of charge. ***JW***

68030! If you want to see the full effect of your accelerator card, you will need to get one that allows you to add 32-bit RAM to it.
e) Yes, you will see a considerable increase in speed in all of the applications you have listed. Some of them come with a specially created version optimised to work on the 68030 and/or 68882. ***TS***

KCS OR BUST?

I have an Amiga 2000 with an XT bridgeboard, 20Mb hard disk and 1Mb of RAM. The Amiga side is being used for *DPaint III* and *Sonix*. The PC side is used for word processing and as an extension to my PC at work. I would like to run *Microsoft Chart*, but I suspect the graphics output to slow.

I am about to install a GVP hard card with a Quantum 105Mb SCSI drive and 8Mb RAM, with a view to running a word processor, desktop publisher and database on the Amiga side. I would also like to install a modem and a CD-ROM in due course. Therefore:
a) Are the advantages of the KCS system sufficient that I should consider changing now?
b) Can a single modem be used for both the PC and Amiga sides with appropriate communications software in each case.
c) Would it be more sensible to wait for Commodore to produce a drive to allow the A570 to be run with the A2000 or buy a CD-ROM to run on the PC side now.

Philip Evans
Eastleigh
Hampshire

a) There is little doubt the KCS Powerboard is far superior to the existing Commodore XT bridgeboard, although Commodore is talking about a very sweet little 386SX bridgeboard which may be shipping by the time you read this. Personally, I have found the KCS board offers the best value for money since it does support more graphics modes than any of its competitors – and this would be useful to run things such as *Microsoft Chart*. The output speed to your Paintjet should the same as a fast XT.
b) Yes. Provided the modem is connected to the external serial port and is not some internal variety, it will work with both systems – only one at a time of course.
c) As far as I know, Commodore has no plans to produce a CDTV CD-ROM drive for the Amiga 1500/2000 machines (watch the company prove me wrong). If you did manage to get a proper PC one to work, it would not be compatible with the Amiga. ***MS***

TO CG OR NOT TO CG

I have just upgraded to an Amiga 1500 Plus with GVP hard drive and 5Mb of memory. I own *PageSetter II* (1.1) and the only outline font that comes with it is CGTimes. I would like to use the LetterGothic and CGTriumvirate fonts supplied with Workbench 2.04 as they give far superior output when compared to bitmap fonts, but I am having problems installing these because *PageSetter II* does not seem to recognise them. The file formats seem different. Can you help?

Edward Campton
Scraptoft
Leicester

Alas, the Workbench 2.04 Compugraphic font format is not the same format as that used by *PageSetter II*. To get more fonts that can be used by *PageSetter II* you need to buy something called the *Outline Fonts Pack*, which costs about £90 and contains 35 professional typefaces, or contact George Thompson Services (☎ 0707 664654) or EM Computergraphic (☎ 0255 431389) both of which sell packs of shareware Compugraphic type fonts which they say can be used with *PageSetter II*. ***JW***

MORE RAM

I am a student who owns an A500 with a version 5 motherboard. I have heard that this version was a slight cock up by recent Amiga standards, and I was wondering whether you could help me on a few points.
a) I am an experienced user of *Pro-Tracker 1.1b*, but I need at least 1.5MB chip RAM to run it better. At present I have 0.5Mb Chip and 0.5Mb Fast RAM. Will it be expensive to do this, as I only have the 8371 Agnus and no ECS?
b) I'm interested in purchasing a KCS board for my work, trouble is, where would I put the Chip RAM? I currently use *Transformer 2.01*, and am reasonably happy running my word processor.
c) I've heard about a 14Mhz accelerator which can grab a faster clock signal using a 68010 chip and a small PCB. I was told that I cannot do this as my RAM chips are 150ns, and it would fail to boot as a result, why?
d) Having read all of this, do you think I'd save more money by selling my A500 and getting myself an A600 or an A1500?
e) If so, is there a 2.04/1.3 ROM switcher for the A1500 & A600 or is it the same thing as used in the A500? I would need this as a lot of my software including *Protracker* and transformer would not run.

Chris Poacher
Mid Glamorgan
South Wales

a) You will probably find *ProTracker* requires 1.5Mb of RAM, not necessarily Chip RAM, as the only machine that currently allows more than 1Mb of Chip memory is the A3000. DKB software in the US does a special adapter for the A500/A1500/A2000 that allows a full 2MB of Chip RAM, however, and that costs around £200. Adding one of these yourself would invalidate any warranty you may have.
b) If you expand your memory using the trapdoor, then you will have no place to put the KCS board. However, if you are using an internal adapter, such as the DKB one then this is not a problem and you should be able to use both. It is always best to double check with your dealer.
c) You shouldn't actually have any problems with this sort of accelerator card. Check with your dealer before purchasing, but a 14Mhz 68010 should not have any problems with a standard A500.
d) This depends on what you are planning on doing on your machine. If you simply play games, then your current setup is more than sufficient. If you are planning on using applications such as word-processors, databases and perhaps programming too, then you will need to start considering more RAM and a hard disk, possibly an accelerator card also. The A1500 is most useful to you from that point of view, as it is a large box with lots of expansion capabilities.
e) It is unlikely that you will be able to fit a ROM switcher inside the A600, but a normal ROM switcher of the type you describe will work in both the A1500 and A2000. ***TS***

GET A MULTISYNC

I am a student and sometime soon I will be buying an Amiga 1500, GVP hard drive, PC emulator and so on. My problem is that I also want to buy a multi-sync monitor, which will probably be an NEC one. Can you tell me what technical specification (if any) I need to ask for when buying it?

Another point – why on earth has the Amiga 1500 only got 1Mb of Chip RAM? Can a new Super Denise be swapped to allow 2Mb of Chip RAM?

Chris Lewthwaite
Long Eaton
Nottingham

If you still want to be able to use the normal Amiga modes you should look for a multisync that can go as low as 15.6KHz for the horizontal sync rate. But if you are going to use a deinterlacing card, such as a Flicker Fixer, or a graphics card with such capabilities, for example GVP's Impact Vision, then the monitor must be able to handle at least 31.2Khz. I would have thought that the whole point of a multisync is to have a more stable picture anyway! So your best bet would probably be one which can handle a range of frequencies, from 15.6KHz upwards.

You should also be aware that the smaller the "dot pitch" (the distance in mm between the phosphor dots), the better the picture will look. Most multisync monitors fall into the .25 to .31 range, which compared to the .42 pitch of a standard 1084 monitor will look rather good.

Out of curiosity I flicked through July's *Amiga Shopper* and noticed

RAM CONFLICT

I have a 0.5Mb RAM expansion from Datel Electronics (Pro-RAM) and this can be set as chipmem. I also have a 1Mb Zydec megaboard which fits between the 0.5Mb upgrade and the trapdoor slot and connects to the Gary chip. If I fit the supplied connector to the 0.5Mb upgrade and make the required PCB alterations, will I end up with 1Mb Chip and 1Mb Fast memory or lose all my Fast memory? Also could you tell me how to connect the Amiga's RGB connector to an Amstrad VGA colour monitor. If I do this will I only be able to use NTSC or will PAL be visible on the monitor?

Ian Webster
Fallowfield
Manchester

As far as I know you can't have 1Mb of Chip memory and use the megaboard RAM extenders. The best way to add fast memory to the Amiga is via the expansion port, either in a hard disk interface or with a separate RAM expansion such as the Cortex or Supra 500RX.

The Amstrad VGA monitor is not a multisync, and therefore won't work with the Amiga. It may be possible to use it with an ICD Flicker Free Video board, but then only if the machine is modified to run at NTSC frequencies permanently. ***JR***

that First Choice sells a Philips SVGA monitor and Flicker Fixer together for £399.99 and Trilogic has an AOC for £329.99, so shop around.

On your second point, I'm afraid that you'll have to fit a MegaChip 2000 to increase your Chip RAM to 2Mb. By the way, Chip RAM is dealt with by Agnus, not Denise! ***GW***

SETTING UP C

I am encountering problems with setting up *Lattice C* (5.10B) purchased from the 16 Bit Centre, Harrogate. My procedure was as follows: To begin, the Lattice boot disk tells you to put certain assigns in the startup–sequence but when I try:

```
ED s:startup-sequence
```

all I get is the message 'unknown command ED'. Similarly if I try:

```
EDIT s:startup-sequence
```

I get 'unknown command EDIT'! How are assign commands inserted into the startup sequence?

Also the Lattice documentation says that the various tools, including the editor, can be made resident. When I try this I am told that 'Editor' is unknown. The people at the 16 Bit Centre were unfortunately not able to help but they did give me the telephone number of a third party who, at a cost of twenty pounds, supplied me with two disks, one a working boot disk. These disks remedied the problems but I am still in the dark as to what I was doing wrong. Can you throw some light on the subject? I've also had problems with naming the disks I've tried to prepare!

BC Carrington
Roos
East Yorkshire

I suspect that the reason that you were sold additional disks is that, given your explanations, someone suspected that you had inadvertently corrupted your originals disks. As it happens I doubt whether you did corrupt your disks but there is a moral here – never, ever, modify any original disks that you receive with any software package. Always write protect the original master disks, make back up copies, then put the masters away somewhere safe. You can then modify the copies and make your day-to-day working copies from those 'master copies'. That way you will always have the originals to fall back on if something goes wrong (this approach is obviously not possible if the product uses a copy protection scheme).

As far as setting up the *Lattice/SAS* system is concerned here's the rundown: *Lattice/SAS C* automates most of the installation procedures and provides details of the hard drive and floppy drive operations in the disk 1 readme file. The readme file talks about editing the startup sequences but you tried using ED and EDIT and the reason for the 'unknown command' messages is that ED and EDIT aren't provided with the *Lattice/SAS* system. *Lattice* has its own text editor, called LSE, which is far more powerful and if, for example, you wanted to edit the startup-sequencell file you could, assuming that the *Lattice/SAS* disk 1 was in drive df0:, type:

```
lse df0:s/startup-sequenceII
```

or alternatively use the disk name itself, ie type:

```
lse SAS_C_5.1.1: ↵
s/startup_sequenceII
```

either way the LSE editor will load in the startup sequence ready for editing. Adding, deleting, and editing assigns and so on, is just a matter of physically altering the text in the startup sequence text file – spend ten minutes playing around with the LSE editor and its documentation and all should become clear as far as text editing is concerned.

The *Lattice/SAS* manual will give details of what changes can be made but at the end of the day a twin-drive Amiga system running *Lattice/SAS* will usually have a set of assignments in operation that look like this:

```
Volumes:
RAM DISK [Mounted]
SAS_C_5.1.2
SAS_C_5.1.1 [Mounted]

Directories:
LIBVolume: SAS_C_5.1.2
INCLUDE Volume: SAS_C_5.1.2
LC SAS_C_5.1.1:lc
QUAD    RAM DISK:
ENVRAM DISK:env
CLIPS    RAM DISK:clipboards
t  RAM DISK:t
S  SAS_C_5.1.1:s
L  SAS_C_5.1.1:l
C  AS_C_5.1.1:c
FONTS    SAS_C_5.1.1:fonts
DEVS     SAS_C_5.1.1:devs
LIBS     SAS_C_5.1.1:libs
SYSSAS_C_5.1.1:
```

These details incidentally were generated by typing 'assign list' at the CLI/Shell window after *Lattice/SAS C* was up and running. The *Lattice/SAS C* 5.1 disk names are called SAS_C_5.1.1, SAS_C_5.1.2, SAS_C_5.1.3... and so on and you need to keep to those names because they are explicitly referred to in the startup scripts. ***PAO***

JARGON BUSTING • JARGON BUSTING

Compugraphic fonts – Rather than a simple bit-mapped image of each character, which grows more jagged with magnification, a Compugraphic font represents the shape of each character within the font as a mathematical equation of the outline. Consequently, as the magnitude of the character is varied in printing, no information is lost and the result always looks smooth.

Multisync monitor – A monitor which can accept its signal at a variety of frequencies, usually ranging from 15 to 32 KHz. A multisync is useful for displaying signal produced by a flicker fixer or from an IBM PC VGA card.

Printer driver – A program that sits inbetween any applications program producing output and the printer. It converts any codes describing text and graphics format into a form suitable for a specific printer.

RAM – Random Access Memory, so called because any part of it can be accessed immediately. RAM is used to hold programs while they are being executed and temporary data.

SCSI – Small Computer Systems Interface is the standard used for connecting hard drives, CD-ROM drives and tape back-up units to computers.

BIG 590

I would like to expand the capacity of my A590. Can I do this by attaching an external SCSI drive? If so where would I get such a thing from and how is it fitted? Would I be able to configure one of the hard drives for use with the KCS Power PC board and the other Amiga?

Also, can you recommend a way of increasing the Chip memory on my 18 month old A500. I am not worried about invalidating my extended warranty.

Jim Perry
Sandy
Beds

The best way to get more capacity from an A590 is to add a larger internal SCSI drive, say 52 or even 105Mb. This will enable you to retain the existing 20Mb and replace it if you want to upgrade later on. The advantage of a SCSI here is that you will always be able to buy a SCSI board for the larger machines. An external 52Mb SCSI system is available but the extra cost works out almost as much as buying a 105Mb internal drive. The very obliging people at Omega Projects will be able to supply the upgrade drive and even fit it for you. They are on 0942 682293

Judging by the age of your machine, you probably already have a 1Mb (Fatter Agnus) fitted; you can check this using AVAIL in Shell. If you have 1Mb of Chip memory, that is the most that machine supports. The cost of upgrading to 2Mb Chip (Super Fat Agnes) is very prohibitive – a second-hand A500 Plus would be a better bet. ***MS***

ADDRESSES OUT OF STEP

I used to have problems using *PageSetter II* with my DeskJet 500, and I was grateful to you for recommending the Jamdisk with the appropriate driver that has the 10" graphics length restriction removed. I bought this, and things are good in that department, though I still can't print any nearer to the foot of an A4 page than half-an-inch. Is this normal?

DRIVE TIME

I use *TransWrite* for word processing but cannot get italics, bold or underline facilities from my Star LC-20 without first booting from the Workbench disk.

I have loaded the EpsonX[CBM_MPS-1250] driver from the Workbench disk, but cannot load this on the *TransWrite* disk – all the preferences settings are copied to the *TransWrite* disk except for the printer type, I seem only to have Custom or Generic options. Help.

HW Adams
Harpenden
Herts

To fix this problem copy the EpsonX[CBM_MPS-1250] printer driver file from the DEVS/PRINTERS directory on your Workbench disk into the DEVS/PRINTERS directory on the *TransWrite* disk. ***JW***

JARGON BUSTING • JARGON BUSTING

Font – The group of letters, numbers and special characters that comprise one variation of typeface, eg: 12pt Times, 12pt Times Bold, 12pt Times Italic. Sometimes (mistakenly) used in desktop publishing to refer to a type family.

HAM – Hold And Modify is an Amiga graphic mode allowing all 4096 colours to be displayed at once, with certain restrictions on adjacent pixels.

IFF – Interchange File Format is a means by which data from different graphics or sound sampling programs are saved in a compatible way. It allows data to be exchanged between programs very easily and avoids the situation on, say, the PC where dozens of different graphics packages each save data in incompatible formats.

Pixel – A pixel (rectangular picture element) is the smallest addressable area on the screen, so a screen's resolution is measured in terms of number of pixels displayable across by number of pixels down.

Virus – A small program that can lie hidden in memory or on a disk, duplicating itself on to any disks inserted in the machine, and generally causing havoc. There are many virus killers available in the public domain designed to deal with this menace.

My main problem, however, is with *Protext 5.5* and its printer driver for the DJ500.

Recently I started to use *Protext*'s mail merge facility. I created a small list of addresses as per the instructions in the manual, and then set about making a letter template which would call up the addresses and insert them in each letter accordingly. Fine so far. My troubles started when I tried to persuade *Protext* to print the addresses in label form.

I copied the program in the manual, which is supposed to allow you to do this (a copy of which is attached), and set the thing running. But, no matter what I did, the printer ignored the 'ignore form feed' stored command >FF OFF and printed just two addresses side by side before ejecting the page and moving on to the next.

So I started fiddling with configuration menus. Eventually, by setting the Ignore Reset option in the printer drivers menu to Yes, I got the printer to print each pair of addresses side by side, and on one sheet of paper. But all of a sudden my top margin had gone from zero to what looked like about four lines, as a result of which the labels soon got out of step and did not fit correctly over the A4 sheet of labels that I had bought.

I have tried changing the page length, but it's obvious that a length of nine lines is what is required.

How do I persuade the printer not to leave such a big gap at the top of the page?

Mark Ogier
St Sampsons
Guernsey

The DeskJet needs to keep hold of a certain amount of paper in order to force the page out of the printer, so it reserves approximately half an inch at the bottom for this. To get right down the bottom you'd need to use continuous stationery.

The Protext >ZM stored command will zero all margins, so stick this one right at the top of your template. Then you can use the >TM stored command to set the top margin to whatever, if anything, you require. Likewise you can use the >LM command to set the left margin.

It might also be wise to use a >PA directly after the last printable line of the template to throw a new page, or in this case (with >PL 9) down to the top of the next label.

Lastly, make sure your template is not more than nine lines in length; place the cursor on the last line and look at the number next to 'Line' in the title bar. Remember that any blank lines in your template above and below the address part will get printed as blank lines. Also remember that the top margin figure forms part of the page length, so a top margin of one line reduces the printable page length by one line. ***JW***

RAM SPEEDS



My A3000 is currently fitted with 2Mb of 100ns chip RAM. Bearing in mind that I am planning on upgrading to a 68040 board in the near future, would it be possible to replace this with 60ns static column RAM instead? What are the speed limits of Chip and Fast RAM?

RMC Kleinsmiede
Manor Park
London

Firstly, there is no way of making your Chip RAM go any faster. By using static column Fast RAM on the A3000's motherboard you can speed RAM access up quite considerably. You will not be able to add 60ns RAM to the motherboard and run it at that speed, the computer is unable to do this. You can, however, add 60ns (or even faster!) to the 68040 card, and the '040 will then be able to access that at full speed if the accelerator card supports it. ***TS***

BACKGROUND MUSIC



I have composed some music using *MED 3.20* and would like to know how I can get modules to play in the background whilst, for instance, viewing my database. Unfortunately I can only seem to get my Amiga to do one thing or the other.

Chris Wright
Bowden
Cheshire

The *MED* player routine, called medplayer, should be on your *MED* disk and if you want the music played as part of a separate AmigaDOS background process you should use AmigaDOS's run command like this:

```
run medplayer <songname>
```

PAO

DIGITISE IN COLOUR?



I am considering buying NewTek's *Media Station* bundle (*DigiView Gold 4*, *DigiPaint 3* and *Elan Performer 2*) along with a mono video camera. I've seen an Hitachi camera for less than £200 but I wonder if it really is possible to get colour images from a mono camera using the filter set provided with *Media Station*?

My main reasons for wanting this set up are:
a) To create a slide show of colour images and
b) I would also like to do a sort of "Creature Comforts" animation. Could you please tell me how this is done, what other software/hardware I would need (I already have *DPaint IV*) and also how to add sound effects and, if possible, speech. I would also like to purchase a graphics tablet – can you recommend one?

Steven Jackson
Wythenshawe
Manchester

I really wonder whether you will need *Elan Performer 2* and *DigiPaint 3* as you mention that you've already got *DPaint IV*, which has a lot in common with these programs. The only major advantages of *Elan Performer* that I can think of is that you can mix and match picture formats and load images as required from disk, though since you only have one disk drive you will be limited by the amount of data you can display without constantly swapping disks. *DigiPaint 3* has some nice brush features which *DPaint* doesn't have, but *DPaint* probably has the edge in the HAM stakes now.

Believe it or not, it *is* possible to

NO PAL OF MINE



When using *Pen Pal* from my GVP 105Mb hard drive I often get crashes when opening documents and using the spelling checker. The abort code is 80000003. Can you explain what this code is?

Also, when printing a document from *PageSetter II* I often play a game while I am waiting, using the Amiga's multitasking abilities. However the speed of the game is badly affected. Would buying more memory solve this problem?

Robin Davey
Billericay
Essex

The abort code is meaningless unless you are an extremely knowledgeable Amiga programmer. Don't worry about it. What? Oh all right. It means "address error". Any the wiser? No, neither am I.

If it only happens sometimes, not every time you open a *Pen Pal* document, the bug is going to be difficult to track down. It could be a very large number of things. You should contact the *Pen Pal* developers, or the UK distributors of *Pen Pal*, and report the problem. And if this only happens when loading from hard disk you ought to contact GVP and/or the distributor from which you bought the hard drive.

However if you haven't registered your software/hardware it may not be too eager to speak to you because there's a possibility that you are using a pirated version. *This is why you should always register any hardware or software that you buy.* (Did you hear that at the back?)

No, more memory won't speed up your games. ***JW***

grab colour images using the colour filters supplied – otherwise there would have been a large number of very angry *DigiView* users and NewTek would have been sued for fraud! Such a system works by filtering the coloured world into the three primary red, green and blue components required to make up a full colour image when using light, as opposed to paint. These components are recombined electronically to make a colour picture inside the computer. I know it works because I often use such a setup myself!

Creature Comforts (and Nick Park's other Plasticine masterpieces) are made by recording each scene on film, frame by frame, making tiny adjustments to the characters and other items between takes, to create the illusion of continuous movement when the film is played back at speed. It takes a very painstaking and dedicated animator to produce such work. You can, of course, use *DigiView* to grab images one by one from your own animation sets, making the adjustments in between each grab. Be warned though, you could end up with *huge* amounts of digitised data – for instance 10 seconds of finished animation recorded at 12 frames/second in lo-res colour could require around 6Mb of storage alone, even before the single frames are compressed together to form an animation. OK, I'm generalising here, but you get the idea. Unless you have a single frame video recorder to build your animation onto you'll have to play it back with your Amiga, which will probably mean that you'll need to invest in a hard disk and more RAM. Of course, if you have access to a single frame VCR, why not record your animation directly to the deck, cutting out both the digitising and the inevitable quality loss? Maybe that's why film is still the preferred medium of those who don't have access to mega-computers and mega-budgets – it requires a lot less equipment than a computer/video setup and the quality is usually superior.

Again, computers *can* be used for adding sound, and by using a system such as Rombo's *Take 2* it is possible to add sampled sounds to an animation, but again large amounts of data are involved for anything other than the most cursory music or spot effects, and so corresponding amounts of storage space are needed, especially if anything approaching hi-fi quality is required, hence sound will usually be 'dubbed' onto the finished film or video from more traditional sources – audio tape, etc.

I'm sorry to be so brief about this, but it's a very big topic which can't really be adequately covered in a column like this. ***GW***

IFFY IMPORTS

Could you please tell me how to import standard IFF pictures into GFA Basic?

Paul Skippings
Great Yarmouth
Norfolk

The easiest way is to convert the IFF picture to an Image structure and use that. The GFA demo program called IFF_TO_BOB.GFA does these (and other) translations – for the nitty gritty details get hold of a copy of *AS* 10 and read Dean Cracknell's GFA Basic article! ***PAO***

A800 OR WHAT?

For some time I've been looking to upgrade my 1Mb twin drive A500 to a larger Amiga. I use it equally for games and applications and was intending to get an A1500. Then came the A1500 Plus and there are even rumours of an A800. However, I do not want the incompatibility problems from a 68020 and a Fat Paula. I do want the following though: 1Mb Chip; two 2Mb floppy drives; 14Mhz 68000; Zorro slots and WB2.04.

I am assuming Commodore will be upgrading the A1500 to this specification in light of the new machines, but if not what should I go for? Should I just buy an A1500 Plus and upgrade later or would this not work? I will also be fitting the GVP Impact IIHC+8 with 1Mb.

Simon Richards
Twickenham
Middlesex

The Amiga series seems to be in a constant state of flux at the moment and no-one seems to know what is going on – including Commodore UK. All that can be said for certain is things will not stay the way they are for very much longer; as far back as the *Amiga Shopper Show*, pirate bulletin boards were carrying early releases of Workbench 3!

The system you have described would be incompatible with a lot of games anyway because you want Kickstart 2, high-density drives and the Fatter Agnus. In such a case you might be well advised to bite the bullet and go for a 68020 platform.

A double speed 68000 would not give a great increase in performance, probably about 20-30 per cent. If you need Zorro slots, you will need at least an A1500 Plus, but it is my considered opinion that it – and the A2000 – are outdated machines and likely to be dumped very soon. My advice is either buy an A1500 Plus now or better still, *wait*! ***MS***

FOREIGN FLOPPIES

I destroyed my DF1: drive, so I acquired a replacement disk drive from work. Unfortunately when I plug it in DF0: will not respond.

Do I have to get a special disk drive, or can I use a 720Kb or 1.44Mb PC disk drive? I still have all the casing and wiring from my original disk drive. I have tried all the jumper settings for AT or EISA machines.

Can I put a Mac HDD on my Amiga, if so, what interface do I need?

David Field
Reading
Berks

As you have found standard PC floppy drives won't always work with the Amiga. Some 720Kb drives, with the right coaxing, can be made to work, but not all of them. Your best bet is to get a good quality Amiga specific drive. There is nothing worse than a slightly-faulty drive slowly losing all your important data.

An Apple High density drive can't be linked to the Amiga, standard 800Kb Macintosh drives can either be used with the A-Max II Macintosh emulator or with the Mac-2-Dos interface, which will enable you to read Macintosh disks on your Amiga with a Mac drive. ***JR***

VIRUS ALERT

About 20 minutes after I load a 1Mb game or *DPaint 3*, the screen fills with lines and blocks and I have to re-boot, losing my work. When trying to copy a disk, I often get the message "Not a DOS disk." This happens with the games in the Cartoon Classic Pack and with the free disks with Amiga magazines. How do I make a copy of a disk? Lastly can I connect a VGA Ananlogue moniter to the A500 Plus?

A Whitehill
Burgess Hill, West Sussex

a) This sounds like you could have a virus, expecially if it works fine for a while and then goes wrong. I recommend you get a good virus checker, such as "VirusChecker 6.05" and check all of your disks. If this does not work, you will have to return the Amiga to your dealer and have it repaired.

b) You won't be able to copy a lot of game disks, as they are copy protected to stop piracy. Most magazine disks, however, do not have this copy protection and should copy fine. To copy a disk on the A500 Plus, insert the disk when you have loaded the "WorkBench", select the disk's icon (By clicking on it once) and choose "Copy" from the "Icons" menu, and follow instructions. If you get the message "Not a DOS Disk" then you will not be able to copy the disk.

b) In theory, yes, but you will only be able to use the special modes, such as productivity mode, unless you have a flicker fixer. If you are going to plug a good quality monitor into the Amiga, its best to use a multisync monitor, as you will be able to use all screen modes on that. ***TS***

FED WHO?

The May edition of *Amiga Format* explained how to design a new font for use with the DTP *PageSetter 1.2* cover disk, using a *FED* utility which was said to be supplied with the Amiga. Yet I can find no trace of *FED* on my disks, and I suspect it was pre-WB2?

What I have got though (on Extras2.0) is is a program called Fountain, but no instructions for it in the manual. When I try to run it, it fails with the message: "Cannot open diskfont.library version 37". I've run out of ideas. Can you help?

Brian Austin
Egham

You're right in guessing that *FED* was a pre-WB2 utility. It wasn't the best font editor ever written, only allowing you to create fonts of up to 32 pixels wide by 32 pixels high (four times the size of the default topaz font), and I guess that with the new Compugraphic font support Commodore decided that *FED* wasn't worth re-writing.

To use Fountain you must first have the larger 'diskfont.library' file in LIBS:, which is the LIBS directory on the disk you boot from. You'll find this file in the LIBS directory on the AmigaFonts2.0 disk. So copy it from there into the LIBS directory of your Workbench disk (or whatever else you boot from), and after re-booting the machine you will then be able to use the Fountain program. After running it, press the Help button to get instructions on how to use it.

But Fountain is not a font editor. I've yet to come across a good, stable shareware or public domain bitmap font editor, so the only thing I can recommend is *Personal Fonts*

OKIMATE 20 RIBBONS



I have an Okimate 20 printer and I have searched Southampton high and low for a printer ribbon. Could you tell me where I can purchase one?

E Ervin
Southampton

Sure. Try Caspell Computer ☎ 0202 666155, or write to the company at FREEPOST, Poole BH15 2BR. ***JW***

Maker from HB Marketing (☎ 0753 686000), reviewed in issue 7. ***JW***

NO GO 1901



I'm having difficulty getting my Commodore 1901 monitor to work with an RGB input. I've wired up the cable as follows:

Amiga (23 pin)		***1901 (9 pin)***
16	**Ground**	**1**
9	**Red**	**3**
8	**Green**	**4**
7	**Blue**	**5**
6	**Intensity**	**6**
11	**H Sync**	
12	**V Sync**	**9**

but it's no go, even though the monitor works fine with composite video input. I've tried a variety of configurations but I can't stop the picture rolling slowly with an RGB input, even though the rest of it appears to be OK.

Bryan Hartley
Poulton-Le-Fylde
Lancs

Once again, I have to be the bearer of bad news – there's a problem with using the 1901 and the Amiga in that one of the synchronisation signals from the Amiga is the wrong polarity (I suspect it to be the H-sync, which is why you're having the rolling trouble). Furthermore, even though it is possible to correct this problem by the use of a custom lead, you'll still only be able to display a maximum of 16 colours on the monitor, as this is the maximum available via the 1901's TTL circuitry. You'd be better off sticking to the composite input or getting a proper SCART monitor, but if you really want to connect your Amiga to the 1901, contact Meedmore Distribution ☎ 051 521 2202 and ask for a K2133 lead. ***GW***

FLOATING NUMBERS



I am in the process of learning to program in C and am using the *NorthC* compiler. According to the documentation floating point scanf() operations are not supported but one of the exercises I have been trying to carry out requires me to input a floating point number using:

```
printf("enter degrees in
fahrenheit:\n");
scanf("%lf, &fahr);
```

My question is can I do this without using scanf()?

Ronald Walters
Walsall

NorthC's printf() and scanf() functions have a number of shortcomings and the floating point scanf() snag you've encountered is one of them. Luckily it is not too disastrous because the amiga.lib library contains some reasonable fast-foating-point <—> ASCII-string conversion routines (these work well with *NorthC* because *NorthC* uses the ffp format internally). The bottom line is that you can use scanf() to input the number as a text string and then use afp() and fpa() to convert numbers. You'll need to get the full details from the RKMs but I'll give you a piece of *NorthC* compilable code to get you started: This program reads a number as a text string, converts it to ffp form, does the Farhenheit<->Centigrade converion, translates the ffp result back to ASCII form, and then displays the result via printf():

```
#include <stdio.h>
#include <math.h>
char data_buffer[20];
float temperature;
main()
{
float afp();
printf("Enter degrees ↵
Fahrenheit\n");
scanf("%s",data_buffer); /*
read number as string */
temperature=afp(data_ ↵
buffer); /* convert to ffp */
temperature=(temperature- ↵
32.0)/1.8; /* F to C */
fpa(temperature,data_ ↵
buffer); /* convert to string
*/
printf("%s\n",data_buffer); ↵
/* and display */
}
```

The output comes back in this format...

[sign][digits][.][digits][E][sign][digits]

<—MANTISSA —>   < EXPONENT >

and if, for example, you enter 68 degrees Fahrenheit you don't get 20 back you get +.20000000E+02. It is easy enough to convert the exponent based number to a more conventional form and this should provide a nice little exercise in string manipulation for you. ***PAO***

ROCK HARD PROBLEMS



a) I have a RocLite (external disk drive) fitted to my A500 Plus and it continually generates the message "Hard Error 88x" where X is between 0 and 9. This occurs when either formatting or copying. However, if I use the same disk in the internal drive it works fine. Is my external drive at fault?
b) I considering buying the RocHard. I would like the 105Mb system with 8Mb RAM but I would appreciate your comments on this since it is a lot cheaper than the SCSI type.
c) I have been told I can upgrade the A500 Plus to 2Mb Chip RAM by adding an extra 1Mb in the trapdoor. If so does this mean I can have a total of 10Mb?
d) Finally, what does the ".K" mean in a script file? A number of scripts I have tried to use with this give me a "bag args" message.

WT Case
Xemxija Hill
Malta

a) There is a problem with the RocLite and A500 Plus machines which only came to light after the A500 Plus machines started shipping. (The compatibility issue raises its ugly backside again!) Essentially it goes something like this. Under the original Kickstart, when you wrote a file to disk, the write operation took place in three parts. In the first phase data was written, next there was a short delay in which the motor was switched off, finally the motor was activated again and the directory information was written to block 880.

This was not an ideal solution because people tended to reset the machine after the first (data) write completed – ignorant of the fact the write cycle had not completed. (This can be demonstrated by editing the startup-sequence on a 1.3 machine and write protecting the disk during a reboot). To cut a long story short, Commodore fixed this in Kickstart 2 and altered the motor on timing, so the drive access light stays ON until the whole operation is completed. Unfortunately, this affects the RocLite so badly, some units cannot write to disks on A500 Plus machines.

Roctec is aware of this and has modified the RocLite to suit. This is not covered by your normal warranty or statutory rights since it constitutes a design change on Commodore's part and the drive is functioning within design specifications. It's not all black though. Roctec has assured me the modification is quite simple and as soon as it releases details, I expect most suppliers will make the change for a minimal charge.

b) There is really no advantage in having a SCSI (Small Computer Systems Interface) drive unless you want to upgrade with things such as SCSI graphics tablets, tape streamers, printers and so on.

The SCSI interface allows up to seven peripherals, whereas IDE supports only 2. On the up side, the RocHard can be upgraded to support SCSI later on and the IDE mechanisms are claimed to be faster.

c) Yes. 8Mb in the hard drive and 2Mb in the machine – this is one of the added advantages of having an A500 Plus.

d) .K or .KEY is the argument string. This allows scripts to have arguments just like real AmigaDOS commands. For example, if a script started with:

```
.KEY Start/A, End/A
```

you would have to supply two parameters. You can see how this works in practice by reading my regular AmigaDOS column which regularly features some very tricky scripts. ***MS***

JARGON BUSTING • JARGON BUSTING

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ZYDEC 1.5MEG A500 UPGRADE fully populated	£75.99
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Fed up unplugging your printer every time you want to use a sampler or Digitiser ? You need one of our PRINTER PORT EXPANDERS. These include **free 2m cable** worth £10.99 to connect them to Amiga. They are fitted with sockets identical to the Amiga's printer port - so your printer cables & other peripherals just **plug straight in**. All lines are fully switched Can be operated with the **Amiga switched on**.

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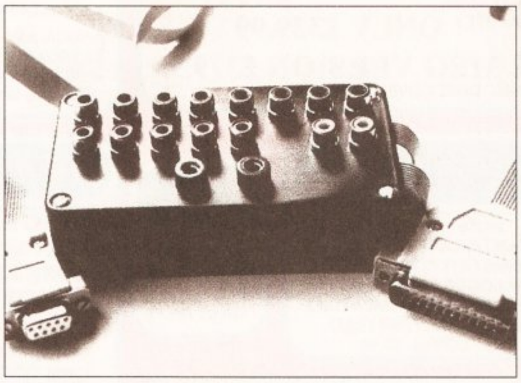
 Prices charged are those current on the day you order - occasionally, some may have change either way since this advertisement was completed (10/7/92) ORDERS FROM PLCs, LOCAL GOVERNMENT & EDUCATIONAL ESTABLISHMENTS WELCOME.

TAKE CONTROL

Wilf Rees shows you how to put your Amiga in charge of its own actions and how Micro French can give a little bit of 'savoir faire'

Control covers many aspects of computer applications, indeed any peripheral connected to a computer which is controlled from the keyboard falls under this category. This month I am going to start a two part article on using your Amiga along with the I/O port and accessories available from Switchsoft.

Equipment for control on the Amiga is a little thin on the ground, so I couldn't resist following up the advert which appears each month in *Amiga Shopper*, describing Switchsoft's I/O port. Andrew McOwan who owns Switchsoft sent me the full Switchsoft port and accessories to present control in what is a well constructed, and fiercely priced piece of kit.



Switchsoft's I/O Port showing the two 'D' connectors going to the parallel port and joystick ports. The phono connectors provide facilities for an assortment of applications

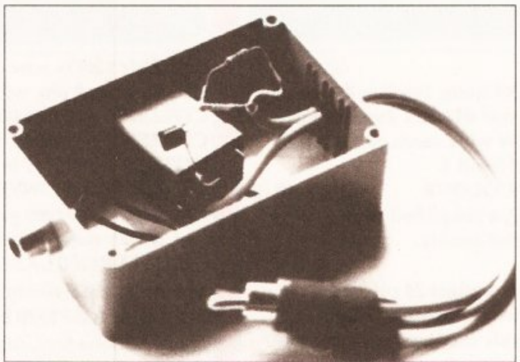
HEALTH WARNING!!

Now before we get into the ballpark, a major health warning! Of the various ports available to you on the Amiga, all carry assorted voltages, signals and data. Unless you are confident about what you are doing, stay clear of dabbling with the old soldering iron and 'D' connector, otherwise your Amiga could suddenly become very poorly and require major surgery.

ASSUME CONTROL

Looking at the Switchsoft I/O port we notice lots of assorted sockets and two ribbon leads culminating in a parallel port 'D' socket and a joystick 'D' socket. The Amiga must be switched off before connecting.

Once re-powered, a red LED tells us the port is receiving the five volts of power required. There are 15 phono (RCA) female sockets and two red power sockets supplying five volts. Eight of the phono sockets (coloured black) come from the parallel port, and these are bi-directional, so each can be configured as an input or output port. Five of the phono sockets (coloured red) are input ports (apart from one, details later) and these come from the joystick port. The last two phono sockets are yellow, and these are 'analogue' ports, which enable the Amiga to measure the resistance connected between the central and outer terminals. The value of the sensors' resistance should be in the range of 0 to 500K. It should be noted that these ports are not buffered, and care must be taken to ensure accurate insulation on any projects you attempt yourself.



Switchsoft's relay model with the top removed to see the internal relay, resistor and transistor to provide high power switching

The two red +5volts sockets provide a limited power supply for some projects, but this is only of the order of 125mAmps, so many applications will need an external power supply. There is however sufficient power to activate a relay – this can act as a switch to control other more powerful devices having their own energy source.

A disk is supplied with the I/O port containing loads of really useful basic applications as well as a comprehensive tool-kit. Control routines are supplied for Amiga Basic, GFA, Hisoft, and AMOS, and the subprograms can easily be incorporated into your own programs, whichever source code you use. A rather neat inclusion is a burglar alarm program, written in Amiga Basic which incorporates speech.

One of the kits supplied from Switchsoft is a sensor and control kit. This contains four LEDs, a relay module and battery pack, a reed switch and magnet, a light bulb, a tilt sensor and a push switch. Each forms the basis of a simple control experiment, and can be operated from the toolbox screen supplied on the disk. But working directly from scratch, let's begin by plugging the phono plugs with LEDs into the eight bi-directional ports. Now let's begin programming.

Using POKE commands, the address to write to is BFE101 (in hex), 12574977 (in decimal). (This is a register on the CIAA chip). POKE a single byte (a number between 0 and 225). So we have POKE 12574977,225. Now turn on all 8 inputs... POKE 12574977,0 Turn off all inputs

These two lines of program are the first action to achieve success, and accordingly the LEDs go on and off. If you are using AMOS or GFA, you will be able to enter a binary number into the editor, so:

```
%00001001
```

will switch on outputs 5 and 8, and switch the others off. The '%' in front of the number tells Basic that it is a binary number. The number must be composed of 8 digits, each digit being 1 or 0 representing on or off.

Now let's try using the bi-directional ports for input, and see if we can register on the screen. To read the 8 inputs the command is the same in all versions of Basic. The easiest way of doing this is to PEEK location BFE101. The POKE command then sets the parallel port to input, the address is BFE301 so:

```
POKE 12575489,0
byte=255-PEEK(12574977)
POKE 12575489,225
```

To continuously monitor the input status and display it, we use a loop...

```
REPEAT
byte=BIN$(225-PEEK(12574977)
PRINT byte
UNTIL INKEY$<>""
```

continued on page 61

JARGON BUSTING • JARGON BUSTING

I/O Port – Input Output Port. A device which enables a computer to send and receive information in assorted forms.

LED – Light Emitting Diode. An electronic component which glows when current is passed across it. (Just like the power light on your Amiga.)

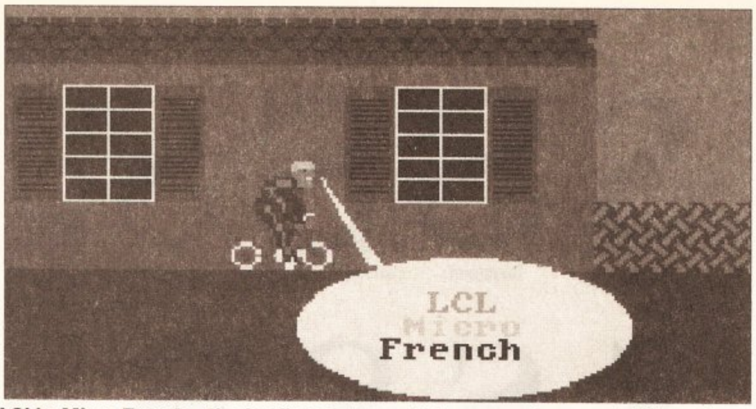
Analogue – Continuous and varying, like analogue joysticks which provide degrees of change other than just off or on.

Relay – An electrically activated switch which has a coil of wire that becomes an electro-magnet on energising, causing the contacts of a big switch to come together, avoiding any physical contact.

Reed switch – A switch that is activated by a magnet approaching or leaving a reed, often used on windows as a burglar alarm sensor.

Light dependent resistor – (LDR) An electronic component whose resistance to an electric current changes according to the level of light falling on its optical sensor.

Thermistor – An electrical component whose resistance changes according to heat.



LCL's *Micro French* – the loading screen which appears in assorted formats prior to selection of each topic

MICRO FRENCH

National Curriculum dictates that all students will have begun to learn French by the age of 11, and by the age of 14 and 16, they will be tested on their knowledge of the language. Most language-based learning software is pretty dull, and fails to take advantage of the sophisticated options available on the Amiga. Examples I have looked at are databases of questions which fail to address using practical language, understanding everyday features, such as road signs, newspapers, conversations in shops, and finding your way around.

continued from page 60

For inputs 9 to 13 we have the joystick port as a source. To read these inputs we need a language with a function for reading that port (eg STICK(1) in GFA).So if we connect a switch, or a shorted phono socket to each input in turn and read the port to see what values we get.

The inputs are numbered 9 10 11 12 13 (Left to Right). Reading the joystick fire button will give the status of the rightmost input (13).

in GFA	`PRINT STRIG(1)`
in Amiga Basic	`PRINT STRIG(3)`
in AMOS	`PRINT FIRE(1)`

This will give a return value of -1 if the input is activated; 0 if the input is off. These functions can be treated in a program as boolean variables, or presented in a loop to monitor and print the status of the inputs on the screen. Eg (in GFA)...

```
DO
I$=STR(ABS(STRIG1)))+BIN$ ↵
(STICK(1),4)
I$=MID$(I$,5,1)+MID$ ↵
(I$,4,1)+MID$(I$,3,1) ↵
+MID$(I$,2,1)+MID$(I$,1,1)
PRINT I$
LOOP
```

The first line does all the work producing a binary string. The second reverses it so that it corresponds to the inputs as seen from the front of the port rather than the back.

SHEDDING SOME LIGHT

The temperature and light control kit comprises of, a light dependent resistor and a thermistor, each attached to two metres of cable. The software supplied with the kit produces a continuous read-out of temperature or light, expressed as a graph, which can be printed out.

I used the thermistor with an extension lead and went to various areas in my kitchen. The read-out fluctuated emphasising the range of temperatures around the room. An immediate application for this device came to mind and started a mini project of its own... I am a Bonsai enthusiast and living in the North of England poses problems for delicate species over the winter. Monitoring of the mini-greenhouse I store them in over winter could enable a relay to trip and turn on a low wattage mains light-bulb, ensuring the on-coming frost was avoided.

Similarly, the light dependent resistor could be used, again with a relay, to switch on a tape recorder and side lamps, should the house be empty of an evening, providing a very cheap but effective intruder deterrent.

GET GEARED UP!

The final component in the kit is a geared motor, which enables interchange of the gears to alter the ratio of the final drive, offering very low revs with high torque. Even as I sit here confronting my word processing program, my 11 year old son has his A500 linked up to the I/O port – the geared motor is slowly rotating a Lego construction, which stops and starts, bearing an uncanny resemblance to a guillotine!

NEXT MONTH

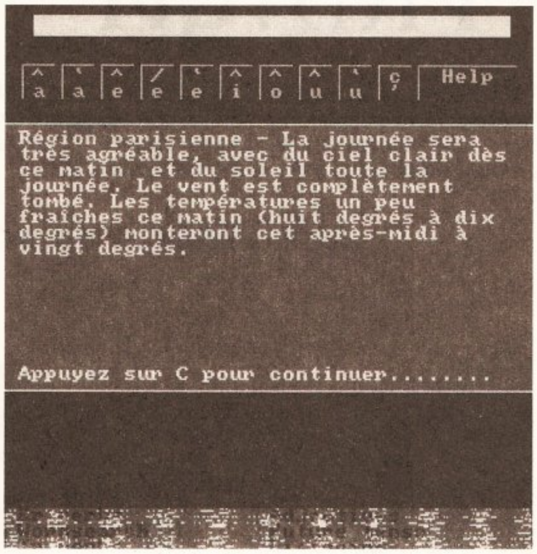
Next month we will be moving further into the realms of control and looking at how we can build and send instructions to a buggy. We'll also be discovering what is involved in constructing a robot, and how we can use our Amigas to control mains

SHOPPING LIST

Input/Output port	**£27.95**
Sensor and control kit	**£27.95**
Temperature and light kit	**£11.95**
Motor with gear box	**£11.10**
Double pole relay	**£14.70**

Available from: Switchsoft, Dept X1, 26 Ridgeway, Darlington, Co Durham
☎ 0325 464423

Having lived in France for a long period I was interested to see how LCL had gone about trying to change the style of learning, and I must confess to being impressed. In addition to the disk with the program, is an audio cassette linking in with the program, giving the opportunity to develop pronunciation. Christopher Randalls' book, *GCSE French Topics* is also included, and this extra bonus is a really useful aid to developing further skills.



Into the comprehension topic, and concentration is required to digest the information in the passage to ensure correct replies

24 WAYS TO IMPROVE YOUR FRENCH

Micro French presents a loading screen, then moves on to a menu, offering any one of the 24 programs which make up the course.

Pronunciation is one of the programs, and you will need a tape recorder to play the cassette. Cues on the tape present opportunities for pronunciation practice – the words or phrases are then displayed on the screen.

Colours presents assorted shapes, and you must key in the French word. *Articles* poses gender questions to help develop an understanding of 'le' and 'la' definition. The broad range of 24 assorted topics covers every aspect of French language learning. Two particular favourites I liked were the *Newspaper* topic and *Role Play*.

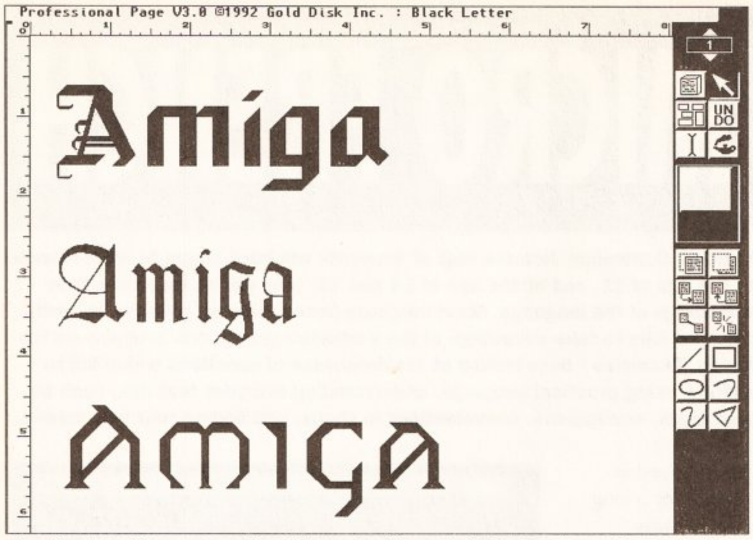
In the newspaper topic, passages are presented for reading. Questions are posed to see if real understanding has taken place. The items cover all sorts of topics, and the concentration required is quite high, in order to respond accurately to the questions.

In *Role Play* the culmination of common phrases is tested, as you are put in a situation where you are told to respond to prompts according to a sequence of events. I thought this was the jewel of the package.

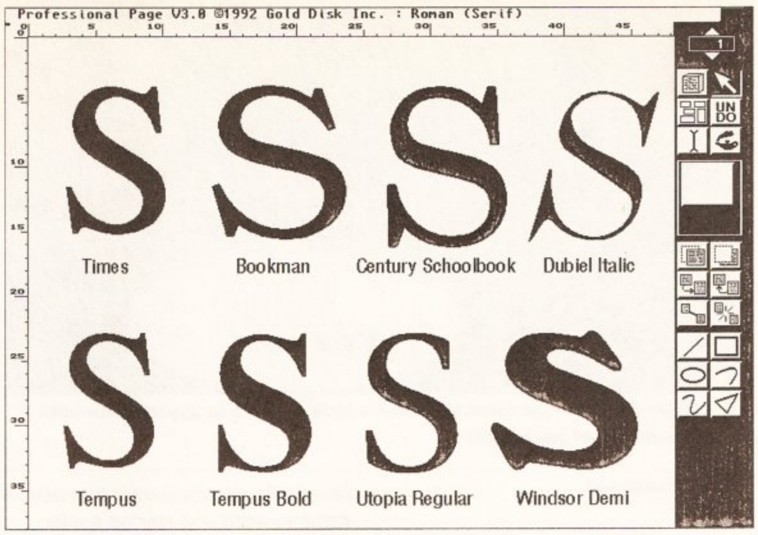
There are quite sophisticated error handling facilities throughout the package. More than once I noticed that information, which I had deliberately entered wrongly, was tested again soon after to see If I had learned from my errors. There is even a facility to enter text with accents, as well as a translate option which often helps when knowing the English word improves understanding, not to mention the usual music which accompanies correct and incorrect responses. LCL has put a great deal of thought into changing the way that French tuition can be presented.

The overall structure of *Micro French* is excellent, and the path through the topics is logical and sequential. Definitely a first class package. LCL is to be commended for producing an innovative and enjoyable teaching aid.

Micro French costs £24 plus P&P and is available from LCL.
☎ 0491 579345 AS



The Black Letter group of typefaces is often mistakenly referred to as Olde Englishe, and even more often and mistakenly referred to as Gothic. If it looks like it belongs on a wedding invitation or a Nazi poster, you can probably safely assume that it's Black Letter. OK?



Roman, or Serif, is the most widely used typeface because of its elegance and class. Look at the thicknesses of the strokes, the rate at which they go from thick to thinner, and at the serifs at the end of the main strokes; these are the three main ways of distinguishing between the different Roman typefaces

Jeff Walker describes the terms and techniques of the art of typography

Reverting to *type*

In past tutorials we've learned about creating leaflets and newsletters and the like, but what we haven't done is learn the basics. In effect, we've been learning to run before we can walk.

There's nothing wrong with that; we've had a lot of fun playing around with various techniques, and hopefully a lot has sunk in, but if we want to understand the whole story, at some point we have to go back and read the opening chapters.

Or like in a film if you prefer, there are things that happen in the middle which don't make sense unless you've seen the beginning. So remember where you came in – I'm going to rewind the tape to the start.

THREE AREAS

There are three broad areas of desktop publishing – words, pictures and design. Each area breaks down into topics, and the topics can be further divided into sub-topics, most of which overlap each other slightly, particularly in the design area.

Words, which is the area we are going to look at first, has two basic topics – typography and style.

By 'style' I don't mean type styles like bold and italics. No, this style is all about communicating effectively and is related in many ways to what you learned/forgot (delete as applicable) in school about English language.

Not 'I before E except after C', we're talking about how to turn writing that stinks into interesting, informative and enjoyable copy. In essence, we're talking about learning how to write.

But that comes later; before we learn how to put the words together we're going to learn about the kinds of squiggly marks that can be used to form those words. Typography it's called, which is the practice of arranging letters, numbers, punctuation and other non-alphabetic characters – collectively known as 'type' – and also the study of type.

In a nutshell, typography boils down to understanding that particular sizes and shapes of letters get some messages across better than other sizes and shapes of letters. To take a simple and extreme example, a headline printed in inch-high letters would look correct whereas a headline printed in tiny letters would look stupid.

TYPES OF TYPE

Type can be divided into groups. In each group there are various 'typefaces'. Each typeface consists of a 'type family' comprising all its different styles: plain, a thinner version called Light, a thicker version called Bold, a smaller one called Condensed, a wider one called Expanded, a slanting one called Italic, and so on. (These names aren't fixed, by the way; for instance some plain faces are called Upright or Regular, some slanting typefaces are called Oblique, some thicker typefaces are called Demi. Basically, whoever designed the typeface gets to call it what they want, although there are certain conventions).

One style and size of type is called a 'font'. So to give a complete example: Times is a type family; Times-Roman, Times-Italic, Times-Bold and Times-BoldItalic are typefaces; Times-Italic 24pt is a font, Times-Italic 10pt is another font, Times-Italic 72pt is yet another font.

The British Standards Institute defines about a dozen groups of typefaces, but the ones used in printing can be divided into roughly six kinds. The four main kinds are Black Letter (sometimes improperly called Gothic – see below), Roman

JARGON BUSTING • JARGON BUSTING

Baseline – The imaginary line on which upper and lower case letters stand.

Black Letter – Type in the Germanic style, often mistakenly referred to as Olde Englishe. (Improperly called Gothic by people who don't like it).

Body (type) – The space, measured from top to bottom, on which a letter is printed.

Body type – The type used for the main text of a document or publication.

Body copy – The main text of a document or publication.

Bold (type) – The thicker version of a particular typeface.

Book (type) – The medium version of a typeface, normally intended for continuous use (as opposed to headings and the like).

(also called Serif), Slab serif (also called Egyptian), and Sans-serif (also, properly, called Gothic).

The two less important kinds of typefaces are called Cursive, which comprises designs based on handwriting or 'script' styles, and Decorative, which is pictorial – a typeface that has flames licking around the letters, for example, or one built from planks of wood.

Black Letter isn't used much these days, except on wedding invitations and signs and stationery for Olde Englishe hotels. It's all very intricate and might look nice hanging on the wall, but it's nigh-on impossible to read. Designed by Johann Gutenburg, based on the work of German scribes, it was the first typeface set in moveable metal type.

Black Letter has never been popular outside Germany and a few other parts of Europe. The Italians despised it, I mean they thought it was the pits, which is why they called it Gothic, another word for barbarian. Italian scribes were more cultured, Rome *was* the seat of civilisation after all and they had an image to keep up, so they wrote in a formal and an informal style. As Roman and Italic these remain today the most widely used typefaces.

ROMAN ELEGANCE

What distinguishes Roman is the variation in thickness of different parts of the letters; it imitates the act of writing with a pen, and its 'serifs', the short lines at the end of the stroke of a letter.

Roman stone masons invented serifs simply because after cutting letters in stone they felt they didn't look right without them. So says history. (Personally I reckon a clumsy mason's apprentice slipped at the end of a complicated curly bit and made the rest of the letters look the same to try and hide the mistake.)

Popular Roman typefaces like Baskerville, Bookman, Century Schoolbook, Garamond, Souvenir and Times are to be seen in publications worldwide for three main reasons: they are formal, they are elegant, they exude class.

They also happen to be easier to read. Scientific studies of eye movements have shown that the eye reads the top of a word first, and then works its way down until the word is recognised, which is normally way before they eye has scanned the the word from top to bottom. As the difference between letters with serifs is more marked than that between letters with no serifs, recognition happens, on average, around 20 per cent faster with serif typefaces.

Clever buggers those Romans.

ENTER THE VICTORIANS

Slab serif typefaces are similar to Roman except the strokes are bolder and the serifs are thick and square.

The Victorians adored Slab serif typefaces, which they also called Egyptian after the most popular Slab serif typeface of the day, and you'll see them all over those wonderful old Victorian music hall and American Wild West 'wanted' posters. These days Slab serif typefaces are mainly used in large sizes for headlines and the like – Lubalin-Bold is a popular one, along with the Egyptian typeface itself.

Sans-serif is letters without serifs; From the French *sans* for 'without'. (The origin of the word 'serif' is lost in time, but is probably from the Old German, although the Old Dutch have a stake in there too).

Sans-serif typefaces are a quite recent invention and came about because one day someone sat down and realised that there was no reason for type to resemble handwriting other than tradition. So they made the strokes of the letters the same thickness throughout, removed the wiggly bits at the end of the strokes, and said stick that in your headline and smoke it.

Like Slab serifs, Sans-serifs abounded during the Victorian age, where they seemed to exemplify the coming of the machine age. Sans-serif typefaces are forceful, brutal even, they shout out the message like an American evangelist where Roman typefaces speak it in the genteel accent of an English nobleman. For this reason Sans-serifs are used mainly for display purposes, for headlines in newspapers and magazines for example, or on posters in bright colours.

"But hang on a moment," I pretend to hear you cry, "this whole article is set in a Sans-serif typeface so this Walker person must be talking out of his wossname." Well, yes and no. The advent of desktop publishing has made it cheaper and easier to experiment with typefaces and many magazines, particularly those aimed wholly or partly at the teenage-to-twenties age group, have found that Sans-serif faces seem to be popular with readers and give the magazine a more 'where it's at' appearance. Sans-serif typefaces can be tiring to read when used for

JARGON BUSTING • JARGON BUSTING

Cap height – The height of capital letters in a particular font, measured from the baseline.

Character – An individual letter, number, punctuation mark.

Condensed – Type that is narrower than the standard face.

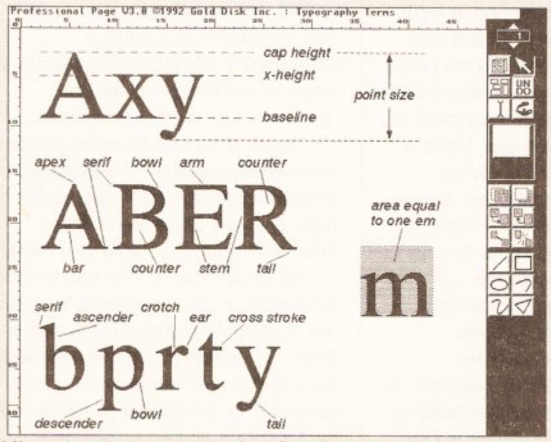
Copy – Text, in manuscript or on disk, that is ready for setting.

Cursive – Type that imitates a formal or informal handwritten style.

Decorative (type) – Ornate typefaces not usually used for continuous text. (Also called Display).

Display (type) – The larger sizes of type used in headings.

TYPEFACES



Like any art, typography has its own terms and jargon; the most common ones are shown above

Typeface design is a skilled and subtle art, slight changes in a curve or the thickness of a line can change the entire character or personality of a letter and affect its legibility.

Typefaces are grouped into 'families' of weights and widths, usually derived from the original medium-weight design which is known variously as Regular, Roman, Book, Medium, Antique, Gothic, and a few others.

The minimum expected of a typeface would be a Medium and Bold weight, both with Italic, so four typefaces in all.

A more complete family would include Light (also called Graphic and Thin), Medium, Semi-bold (usually called Demi), Bold, Extra-bold (variously called Ultra, Black, Heavy and Extra), all with Italic (also called Kursiv or Oblique), together with Narrow (or Condensed) and Wide (or Extended or Expanded) versions of them all. To save you the bother of counting that lot up, I'll tell you that such a family would comprise no less than 30 typefaces.

On top of this we could have Swash versions, which would normally be Ultra and Ultra-Italic faces with additional flourishes (ie bigger/extra wiggly bits), and Contour versions, which would normally be the Medium face with a thin outline running around the contours of the characters.

The advantage of such large ranges is so that typefaces can be used together with complete confidence in order that they will not only correspond exactly in proportion, but that they will work together harmoniously on the same page.



The complete Garamond type family; you may find it difficult to track down computer versions of the Ultra face

something that requires a lot of non-stop text, like a book, but are perfectly acceptable for short pieces like magazine articles.

Cursive typefaces are of limited use and are often difficult to recognise as being Cursive. Copperplate, for example, is a Cursive typeface, but, having read this far, if I showed you something set in Copperplate you'd swear it was Serif.

Probably the best known Cursive typeface is Zapf Chancery, and this looks more like a Cursive typeface should – like handwritten text, be it neat, formal, scrawled, scribbled or whatever. Cursive typefaces are no use for body copy (the main body of text in a publication) because it is very tiring to read even in short passages, they're no use for headlines because they don't have enough weight, or 'oomph' if you like... As I said, Cursive typefaces are of limited use. But there are plenty of them around if you need them.

So, having talked about Black Letter, Roman, Slab serif, Sans-serif and Cursive, we're left with Decorative.

PUBLISH AND BE...

Decorative is the category every other kind of typeface gets put into. It's the filing cabinet labelled Misc, the 'bar' in the betting, the drawer where the odd socks get thrown.

Decorative typefaces are more like illustrations than type, and they include letters made from things like dominoes, trees, flowers, flames, stars and stripes, explosion... anything you fancy. They play a useful part in desktop publishing, used exclusively for less formal purposes such as posters and fancy headings, initial capital letters (many Decorative typefaces are composed of upper case letters only), or even for pure illustration. Their job is manifold – to catch and please the eye, to make the reader look a little closer, to strike home a message, to create an image or atmosphere.



Slab serif, or Egyptian as it is often called, was a popular poster typeface with Victorians on both sides of the pond

They sprung from the Victorian era, probably as a reaction to the machine age, inspired by the lines and shapes of Art Nouveau and Art Deco, and they were all the rage until the 1920s when sobriety returned. Until the 1960s, that is, when the designers of the underground press broke every rule in the publishing book and rubbed the establishment up the wrong way with weird and wonderful psychedelic effects.

Society branded these contemporary designers subversives, a few were even tried and found guilty of plotting to debauch and corrupt the morals of young persons. Today, thank heavens, they are recognised for what they were – stoned most of time, but extraordinarily innovative between times.



Sans-serif typeface (which is properly called Gothic) was designed for display purposes in large sizes, but now many 'where it's at' publications (including this one) use it for body copy

A similar thing is happening today over the graffiti sprayed on city walls. It started in the late 1970s as part of the punk scene, and in truth most of that early punk graffiti was quite ugly, but then so is Black Letter and we stick that on wedding invites!

These days there's a lot more to graffiti than meets the eye. There's science and rules behind those apparently random squiggles, and graffiti has almost reached the point where it can be classed as its own sub-group of the Decorative typefaces. Typography or teenage vandalism? Only time will tell.

The British have become frightened of decoration, 'restraint' is the keyword for today's professional typographer. The consensus is that printing should be invisible, just a pane of glass between the reader and the words. This certainly came about as a result of the mechanisation of printing, which made it cheaper and faster to print more and more, and forced publishers to meet tighter and tighter deadlines. Time became money.

Printing used to be closer to other arts like painting and sculpture, and 'one man band' printers would regularly burn the midnight oil slaving over unusual typefaces and fancy borders. With the advent of DTP the computer has brought back the individual approach. Or, at least, provided the potential. We're all such stick-in-the-mud fuddy-duddys that it could be decades before we see posters as exuberant as those the Victorians gave us, or publications as daring and innovative as the 1960s underground Oz magazine.

MEASURE TO MEASURE

Typography has its own standard units of measurement: points and picas (which is pronounced 'pikers' as in 'bikers', not 'peekers' as in 'seekers').

There are 72 points to the inch, and 6 picas to the inch (and therefore 12 points to each pica). In conventional printing these figures are approximate, in desktop publishing they are exact.

Printers have a host of terms for type set in certain point sizes. For instance they call 12 point type Pica, 5.5 point type Agate, 5.25 point type Ruby... I shan't go on because none of these terms (apart from pica) matter and will only help to confuse you. (I know they confuse me.) You may well come across the odd printer who still speaks in this jargon, but it's a lot easier not to bother with it.

All you really need to know is that the height of a letter is measured in points, and the width at which a line of type is set (the 'measure') is measured in picas.

There are a few measurements that are not absolute, they change depending on the point size of the type. The only ones you need to know about are ens, ems and thins.

An en is equal to the space filled by a letter 'n' of a particular font. An em is equal to the space filled by a letter 'm', which is a square (as wide as it is high). An em is twice as big as an en. In 12 point type an em will be 12 points and an en will be 6 points; in 9 point type an em will be 9 points and an en will be 4.5 points. In conventional printing these measurements are most often used as the basis for indenting lines.

A thin is equal to the space filled

JARGON BUSTING • JARGON BUSTING

Descender – The part of a letter that comes below the baseline in lower case letters like q p q y.

Desktop publishing – A means of publishing in which all stages from writing to typesetting are done by a computer and specialised software.

Em – The square of the body of a type. (Sometimes called a Mutton).

En – Half the square of the body of a type. (Sometimes called a Nut.)

Font – A particular typeface printed in a particular size and style. (Note: a font is not the same thing as a typeface).

Gothic – Properly used to describe Sans-serif typefaces, but also applied to Germanic or Olde Englishe which is properly called Black Letter.

Indent – Setting that is less than the full column width; not just the space inserted at the beginning of a line, but also any space inserted at the end of the line (eg left and right margins for text in panels).

Italic (type) – The sloping-to-the-right version of a particular typeface. (Also called Kursiv or Oblique).

Lower case – The small characters in a font like a b c d.

Measure – The width of a column of text, normally specified in picas.

Page depth – The length of the text area on the page (from top to bottom).

Pica – A unit of typographical measurement, 12 points = 1 pica.

Point – The basic unit of typographical measurement. In desktop publishing, 72 points equals exactly one inch.

by a full stop and is used (in conventional printing) for spacing letters.

You may be wondering if there is any sense in DTP imitating conventional printing with the points and picas measurements. Why not scrap it and use inches or centimetres?

The answer is because type sizes are measured in points and it's easier to relate point sizes and line spacing in points to column lengths measured in picas or points.

For example, you can quickly calculate how many lines of type in a certain point size with a certain amount of line spacing will fit into a column of a given size in picas. Say we are setting type in 8 point with 2 points of spacing between each line. So each line, including the spacing, is 10 points. The shorthand way of writing down '8 point type with 2 points line spacing' is 8/10pt – which translates to 'the type is 8pt / a line of type including the line spacing will occupy 10pt'. Remember this, I'll be using it again in a minute.



Many company logos are set in Cursive faces. Once you've seen a distinctive Cursive face you tend to associate it with the company responsible for publishing the document (product, letterhead etc)

Now let's say our column height is 60 picas. Convert 60 picas into points (60 times 12), which is 720 points. So how many 10 point lines will fill the column? Easy, isn't it? Divide 10 points into 720 points and we get 72 lines of type.

Understanding this simple calculation helps you to line up columns of type accurately. Say you have one 60 pica column of 8/10pt type starting at pica 0 (the top of the page), and another column next to it starting at pica 12 (two inches down from the top of the page). The space above this second column has been reserved for an illustration.

But when you flow the text from the first column into the second, the lines of type don't line up, the text in the right-hand column looks out of step. You need to alter the top position of the box slightly to put things right. But by how much?

You could do it by eye, but what you see on the screen is limited by the screen's resolution and isn't minutely accurate. Many's the time I've lined something up on-screen only to have it a point or two out of place on the printout.

The calculation is quick and uncomplicated. Your right-hand box is currently at pica 12, which in points is 144 (12 times 12). Divide that by the vertical space occupied by each line of type, which in our case is 10, and we get 14 (lines of type) plus a bit left over. What we're after is that remainder, which is 4 points. That is how far *downwards* you have to adjust the top position of your box by to get the lines of type in the left-hand and right-hand columns to line up with each other. Or you could move it up by 6 points to achieve the same thing, a figure arrived at by subtracting the remainder from the type-plus-spacing size.

It's well worth making the effort of getting used to this points and picas system, you'll find it much less painful than getting used to centimetres after inches or pounds and pence after LSD. (For younger readers, that is not a reference to an illegal substance, it's what we used to call our old pounds, shillings and pence money system. The pound sign looks like an 'L', and the 'S' was for shillings and the 'D' stood for... erm... Don't know).

NO RULES

There are no rules in typography, rather 'guidelines to bear in mind' if you want your publication to appear professional. By that I mean that there are guidelines to adhere to if you want your typography to be the 'pane of glass' between the reader and the words.

Which is a fancy way of saying 'easy to read and understand'.

1. Never use more than three fonts on a page or spread. Remember that a font is a typeface in a particular size and style. So the same typeface on the page in three different sizes constitutes three fonts. Too many fonts on a page are confusing.

2. Reserve the use of unusual and decorative typefaces to headings. Unusual typefaces need to be used sparingly or they stop being unusual. A large slab of text set in a decorative typeface may be unreadable.

3. Create an overall style for any particular publication. There should be some logic behind your selection of types. You could choose 60 points for all your main headings, 24 points for sub-headings, 10 points for the main body copy, 8 points for captions, 6 points for page numbers, and so on and so forth. Stick to this style for the whole publication.



When you say the word 'fonts' this is the sort of picture people think of, but the Decorative or Display group of fonts need to be used with care

If you don't follow these guidelines you run the risk of appearing amateurish. Joe Public has got used to seeing his reading material printed in a certain way, and if you deviate too far from the norm it'll be put down to poor typography, not innovation. If you want to be innovative you need to know how to craft words that explode in readers' minds and how to design page layouts that make eyes glaze over. We'll do those another month.

In the meantime, get down to the library and spend the day studying every magazine and newspaper on the shelves. Take a pad and pencil and see if you can relate what you've learned here to anything you see on the pages.

When you start recognising the techniques, can look at a publication and say "they did that because...", and you start asking "why did they do that?", you're on the road to becoming a professional desktop publisher.

JARGON BUSTING • JARGON BUSTING

Roman (type) – The upright version of a particular typeface. (Also called Regular, Book or Medium, and sometimes Antique or Gothic).

Sans-serif – A typeface without serifs. (Also called Grotesque).

Semi-bold – A weight of typeface that is heavier than Medium but not as heavy as Bold. (Also called Demi).

Serif – The small stroke at the end of the main stroke of a letter.

Set – To assemble letters into words and lines. (Can also mean the width of an individual character across the body).

Slab serif – A typeface with bold strokes and thick, square serifs. (Egyptian).

Spread – A pair of facing pages. (Also called a double-page spread, commonly abbreviated to DPS).

Swash – Characters with additional flourishes.

Type – Letters, numbers, punctuation and other non-alphabetic characters.

Typeface – A particular style of type.

Type family – A series of typefaces in different weights and widths, but with the same design characteristics.

Type style – Type in a specific style such as bold, italic, condensed etc

Typeset – Text printed in a recognisable typeface.

Ultra – An exaggerated heavy version of a particular typeface. (Also called Black, Heavy and Extra.)

Upper case – Capital letters.

Wide (type) – The wide version of a particular typeface. (Also called Extended or Expanded).

x-height – The height of lower case letters in a particular font, measured from the baseline.

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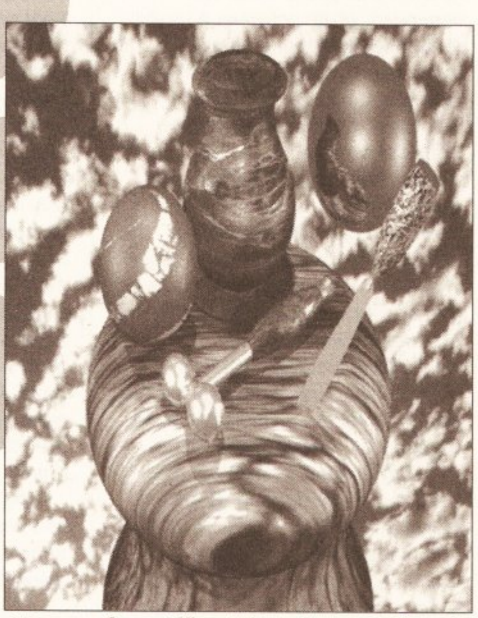
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Sensory Sensations

Gary Whiteley gets in touch with the latest textures as well as reviews of DigiTiger and VLab. PLUS: Reverser – an automatic file naming utility for your animations

There are times when you need a great-looking background to boost a boring illustration. There are also times when you need to make 3D objects look realistic but you don't have the right texture in your library. Well, here's a brief round-up to point you in the right direction.



A magnificent demo image produced with *Real3D 1.4* which shows off Alternative 3D Textures to best advantage. Use them for picture backgrounds too

ALTERNATIVE 3D TEXTURES

A few issues ago I had a look at *SurfaceMaster*, an American texture mapping helper for *Imagine* which contains various images for mapping on to 3D objects. It's now apparent that 3D surface manipulation is becoming increasingly popular, as the advent of a major new collection of textures from the UK proves. Its producer, Alternative Image, *has* been busy lately. As well as *Reverser* (reviewed later) it has just issued the first in its series of textures for 3D and 2D graphics work. And it's a big package!

Alternative 3D Textures comprises twelve disks, each containing one original texture in a variety of formats, and two bonus disks with utilities and examples for *Real3D* (version 1.4!) users. That's over 10Mb of picture data alone! The latest version of the excellent *View* program is also included for you to use for playing back animations and showing images in many formats.

I've been using the textures in a variety of programs and I've been very impressed with their quality. All the images are scanned in 24-bit from photographs and are provided in the following standard formats:

- 400x400 24-bit (16M colour) ILBM
- 320x512 HAM (4096 colour) ILBM
- 640x512 8 colour ILBM
- 640x512 8 or 4 colour greyscale ILBM

The textures are taken from natural sources, sky, grass, trees and rocks, providing a rich choice of surfaces for 3D objects and 2D backdrops. I'm informed that they're all from holiday snaps taken by AI's own Henri Bujko!

Take note, though, that 3D texture mapping can be *very* memory intensive! Even with 11Mb of memory I found that two of the textures wouldn't load when I was using *Imagine 2.0*. I suspect this has something to do with the fact that my Amiga only has 1Mb of Chip RAM. However, by either converting them to RGBN or reducing their size, it was possible to use them.

Alternative 3D Textures are available from: Alternative Image, 6 Lothair Road, Aylestone, Leicester LE2 7QB. ☎ 0533 440041. And the price? A reasonable £40.

SCREEN-MAKER

Just as I was wrapping up this article I received a demo disk for *Screen-Maker 2.2*, from Digital Graphics Library which provides a glimpse into a collection of over a hundred 24-bit, professionally-designed images for video and graphics backgrounds.

There are six sample files which have to be decompressed from their .DGL format into 24-bit pictures before use. This doesn't mean that you need a 24-bit display device to use them, as the pictures could be converted to other formats, though they will obviously look best in 24-bit.

One innovatory aspect of the decompression program is that the picture dimensions can be anything up to 2048 x 2048, though the user can also opt for the less exotic overscan PAL or NTSC formats.

To utilise *Screen-Maker*'s full potential a hard disk is required. The 100 image files occupy around 3Mb in compressed format, or 100Mb when uncompressed! Decompression is quite fast, and is easy to achieve with CLI commands.

As you can see from the picture, quality is high. I was impressed with all 6 samples provided, especially in 24-bit. Oddly though, some of the 24-bit pictures are dithered! Surely this isn't right, but from what I've seen, the US price of $99.95 looks reasonable, and for those without 24-bit displays, a Top 40 set of HAM images is available at $79.95.

Lastly, for wedding videographers out there, a specialist set of 25 images is provided in 24-bit ($89.95) and HAM ($69.95). If they are up to the quality of the *Screen-Maker* pics I should think they'll go down well.

Keep your eyes peeled for Screen-Maker in the UK. If you can't wait – The Digital Graphics Library, 1382 Third Avenue, Suite #333, New York, NY 10021. ☎ 0101 212 978 8508 / FAX: 879 0707.

AND MORE TEXTURES...

On the subject of textures and things I thought I'd share this interesting press release with you. It originates from *AmReport*, an American electronic magazine for the Amiga community, also available on CIX...

TEXTILES IMAGES

Mannikin Sceptre Graphics Ships TexTiles Volume I & II

Mannikin Sceptre graphics announces *TexTiles*, a premier collection of true-colour seamless images for use in 3D rendering, image processing, page-layout and design programs. *TexTiles* will ship in 24-bit IFF format for the Amiga and NewTek's Video Toaster on June 1, 1992. Future releases will include 24-bit TIFF for the Apple Mac and IBM compatible graphics packages.

TexTiles are algorithmically generated textures simulating a variety of surfaces. Each measures 256 by 256 pixels, reducing memory requirements and allowing users with little memory to enjoy true colour image mapping.

Edge mapping ensures seamless transitions for tiling fills in paint programs and texture mapping in three dimensional rendering and modelling software. *TexTiles* are compatible with all software packages which support 24-bit IFF ILBM graphic file format.

PRICING AND AVAILABILITY

TexTiles will be available through resellers and directly from Mannikin Sceptre Graphics for a suggested price of $39.95 per volume. Each contains 40 true-colour images on 10 low density disks. The initial release will be comprised of two volumes – *Volume 1: Things That Go Bump and Volume 2: MegaMaps.* Demo disks are available for $5.00, postage included.

Mannikin Sceptre Graphics, 1600 Indiana Ave, Winter Park, FL 32789 ☎ (407) 384-9484 FAX: (407) 647-7242



The results of identical digitising setups. *Digi-View* (right) took more than twice as long to grab an image as *DigiTiger*. Neither image has been retouched

DIGITIGER II

I first encountered the *DigiTiger* video digitiser and RGB splitter combo in mid-1991 at the Ami Expo in Berlin. It looked interesting, so I left my card with its maker, hoping a review would follow. Now, a year later, I've had the opportunity to get my paws on version 2. What follows is a rundown of this German-produced grabber.

SNARLINGLY FAST

The packaging claims that *DigiTiger* is a fast operator and, at least compared to *Digi-View Gold*, this claim appears to be true – *DigiTiger* is at least twice as fast as *Digi-View* in all departments. Even at these speeds the *DigiTiger* produces consistently better overall quality than NewTek's original boss digitiser.

DigiTiger is the largest digitiser I've seen for the Amiga, closely resembling a Shorter Oxford English Dictionary in size. It is cream coloured with black tiger-stripe transfers, powered by a mains adaptor (included) attaching to the parallel port by a generous length of cable. Composite video is fed to the rear of the unit via a Phono socket.

SOFT UND HARDWARE

On the front are three knobs which control brightness, contrast and colour. These affect the signal before it is digitised, and are thus useful for adjustments and corrections to the video to be digitised. By increasing the Contrast fully, for example, a line art effect can be obtained. A fourth knob, marked SYN, is for dealing with synchronising errors produced by some VTRs.

Now for the software. Provided on the single disk is the main program, some demo pictures, and a slide show program for viewing them. Strangely, while the manual is entirely in German, the program is also available in an English version. This helped me no end, as I really haven't got to grips with words like Spannungswahlschalter yet. Roll on 1993, then we'll really be in trouble!

A quick double click on the program icon and we're off. All the usual Amiga features – pull down menus, colour palettes, screen resolutions – in fact, there seems to be nothing unusual here.

EASY MONITORING

At least until you find the Test command, which activates a useful feature for monitoring what your video source is up to. Though Test only operates when the screen resolution is set to lo-res (320 x 256) it does allow you to view the video on your Amiga monitor – for previewing, this is sufficient. For those who use cameras with no viewfinders or prefer to see a larger image than on miniature monitors or who digitise direct from VCR, the Test setting will be a help. Incidentally, although *DigiTiger* is nippy, it isn't a real-time digitiser, so any VCR used for digitising must be capable of a steady freeze frame.

DigiTiger has 8 preset screen sizes to choose from, ranging from standard 320 x 512 lo-res to 704 x 560 hi-res. Size is set before digitising, but the number of colours is determined after the picture has been grabbed. Anything up to 4096 (HAM) colours can be used, depending on the screen resolution.

There are six settings for the digitising method, Test being one of them. Of these, two are more novelty effects than serious methods, with Antique giving a sepia tone to the grabs and Pseudo-Colours giving a psychedelic false colouring to the digitised image. The remaining three, Black and White, Colour Manual and Colour Auto, are by far the most useful. Black and white does as its name suggests and grabs only in black and white. Colour Manual is useful for those who use a black and white camera with a colour filter wheel as the user is prompted to change the filter colour after each separate pass. Colour Auto utilises the *DigiTiger*'s built-in colour splitter for digitising colour composite video from cameras and other sources.

Once an image has been digitised, a Colour Mixture requester appears with selections for the number of colours (2 through 4096), colour control (Red, Green or Blue increase/decrease), palette commands and HAM sharpness. Most of these functions are self-explanatory, though the Palette functions need a little clarification.

The Palette commands consist of a bar marked Fix, Auto and five other settings marked A to E. Some of these are for optimising the palette of the digitised picture, while the Fix setting forces all subsequently digitised images to be mapped with the same palette – very useful for those who wish to make animations in *DPaint* with a grabbed sequence.

UNDER SCRUTINY

How well does the *DigiTiger* perform? I tested it under various conditions with black and white, colour and VCR inputs and I found the results were very good. I had to spend some time making small adjustments to the front panel controls, but I was satisfied with *DigiTiger*'s output. In a head to head with *Digi-View* (my standard digitiser) the *DigiTiger* shone in most departments. Speed and quality were almost always better when using the *DigiTiger*. The only minus is in the software and the lack of RGB saving. As far as image manipulation goes *Digi-View* offers more flexibility in processing, while *DigiTiger* provides it mostly in hardware. Pictures cannot be loaded back into *DigiTiger*'s software for reprocessing as with *Digi-View* and more options for software control over dithering would be useful. Other than that I liked *DigiTiger* a lot.

DigiTiger works with all Amigas, and should be compatible with most turbo cards. 1Mb RAM or more is recommended.

FORTHCOMING ATTRACTIONS

New software is being developed for *DigiTiger II* which should be available soon. It will include:

- Direct support for different graphics cards such as AVideo12/24
- RGB saving (for 12/24-bit format)
- ARexx interface
- User definable colour palette
- One step digitising and saving of a frame sequence
- DTP mode to convert colour to 2 colour or greyscale dithered images
- Remote control for frame grabbing for VTRs with frame advance facility

Sounds good, doesn't it?

SHOPPING LIST

DigiTiger II ....(ex VAT) DM507
(expected UK price around £200 inc VAT)
Available from: Klaus D Tute,
Soft-, Art-und Hardware,
Kirchroder Str.49D,
3000 Hannover 61
☎ 010 40 0511 551701
At the time of writing DigiTiger has no UK distributor, though one is being actively sought

CHECKOUT DigiTiger II

Documentation ????
It's all in German at the moment, but it looks very comprehensive.

Features ●●●●○
Replete in both hardware and software.

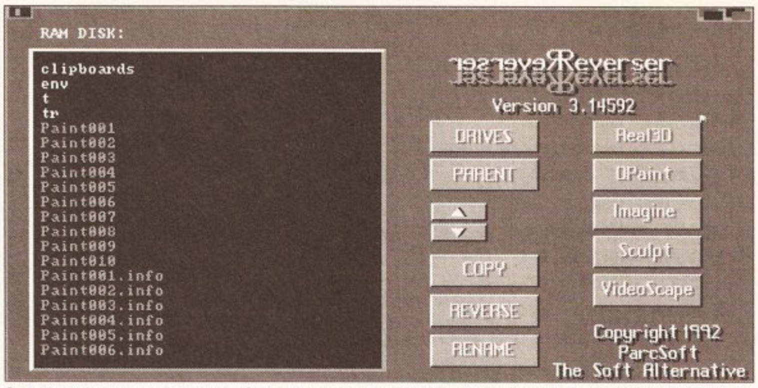
Ease Of Use ●●●●○
Very simple to set up and use.

Speed ●●●●●
Blisteringly fast.

Output Quality ●●●●○
Very high standard.

Price ●●●○○
Perhaps a little high, but probably worth it.

Overall rating ●●●●○
A good value all-round digitiser if you need speed and quality.



An easy-to-operate menu is the heart of *Reverser*. Point and click for action

REVERSER

I must admit I was sceptical when I first heard of *Reverser* – I honestly thought I was having my leg pulled! But stranger things have happened and when a plain brown envelope came through my letter box I was not surprised to find a copy of Parcsoft's *Reverser* (version 3.14569) inside.

One look at the packaging and I was almost convinced that *Reverser* was an elaborate joke. "Also available for NCube, CrayX1 and Armitage Shanks", the blurb said. "Programmed by Dr Anthony Cwik using a transputer based CebelFourBox". Good grief – had the folks at Alternative Image lost their reality pills?

BUT SERIOUSLY FOLKS!

Yes, *Reverser* actually does exist and does what it says it does. Which is very simple really. *Reverser* manipulates file names. (Readers drift away to marvel at traffic lights changing, thrill at paint drying etc). What's more, it's very handy, if you're an animator. Let me explain...

If you make an animation with, for instance, *DPaint*, and then save all the frames as separate pictures, they will be numbered in sequence as NAME001, NAME002 etc. Fine and dandy if that's what you need. But, being an animator, you might want to use this sequence of pictures as part of a more complex animation that you're building in a 3D program such as *Real 3D*, *Imagine* or *VideoScape*. The only problem is that there is no standard naming system for picture files. *Real3D* appends files as NAME0, NAME1, *Imagine* requires them to be called PIC.0001, PIC.0002, *Videoscape* names files Pic01, Pic02 etc and *Sculpt* wants files like NAME.1.image. This means that every time you want to load a set of pictures into one of these programs they have to be renamed.

To give you an idea of the usefulness of *Reverser* let's say I've prepared a 20 frame animation in *DPaint* which I want to have playing back on the screen of a 3D television that I'm animating in *Imagine*. The first step is to save the frames as separate images, which *DPaint* will call Pic001 to Pic020. But *Imagine* requires that they are called Pic.0001 to Pic.0020. OK, it's fairly easy in this instance to rename them by hand, especially by using a utility like *DiskMaster*, *SID* or *Directory Opus*. But what if I had 200 frames to rename instead of 20? A small task would become a grinding chore. However, after using *Reverser* I'll never go back to my old powder!

SIMPLICITY ITSELF

All that's required is to load up *Reverser* from the CLI or Workbench, select the picture sequence I wish to manipulate and then select the format I wish to rename it to from the side panels. After confirming my selection, *Reverser* renames all the associated files. As simple as that.

Currently supported systems are *Real3D*, *Imagine*, *DPaint*, *Sculpt* and *Videoscape*, though I understand at additions are being made to cater for *Caligari*, *Lightwave3D*, *VistaPro*, *Draw4D* and *3D Professional*.

Reverser does several other useful tasks. It can rename a picture files in reverse order – where the first frame becomes the last, the second the penultimate and so on. Pay attention here, budding animators. This may seem like a menial task, but try doing this by hand sometime? Then you'll see my point.

VLAB
a snappy snapper

By happy coincidence another German digitiser came my way this month. Called the *VLab*, it is an internally-mounting, half-size, Zorro II, high quality fast-scan frame grabber for Amiga 1500/2000 /3000 computers and it costs £299. Interested? Then read on...

VLab uses custom video chips usually found in more expensive video equipment and communicates with the outside world via two software selectable composite video inputs. The image is grabbed by the video chips and then stored in an on-board 768K buffer, which gives *VLab* the capability of grabbing a frame in real time from any composite video source, including non-time base corrected VTRs.

VLAB SPECIFICATIONS

- Zorro II card for A2000/3000
- 768Kb high speed field memory RAM (buffer)
- Two software-selectable composite video inputs.
- 720x580 maximum resolution
- Real time grabbing of single frames

QUALITY CONTROL

As *VLab* digitises images in a YUV format (video chrominance and luminance combined) it is possible to achieve very high quality grabs and whilst these are not 24-bit there is only minimal loss when a YUV grab is converted to 24-bit. In fact, there is really no point to grabbing in 24-bit anyway since an overscan 720 x 580 image can only have a maximum of 417600 colours, or approximately 18 bitplanes, not 24. However, the grabbed image can be directly displayed on ACS's Harlequin board for full effect and can be later retouched with *TVPaint*, for example.

As *VLab* also handles NTSC video with ease I tried a small experiment. I connected the output from a Video Toaster directly to the *VLab*, switched it to NTSC, and then grabbed a frame from one of the Toaster's framestore images, which are very high quality. I then converted the YUV grab to 24-bit and redisplayed it with the Toaster. The quality was magnificent!

In fact, I tested *VLab* with VHS, Hi-Band U-Matic, Hi-8 and off-air video, and, though obviously limited by the characteristics of each format, I was very impressed with the quality of grabs which could be obtained.

The higher the quality you feed to *VLab*, the better the results you get back.

Two things struck me immediately about the *VLab* software – its clean-cut look and how easy to use it was. And no need to worry about learning German as an English version of the software is provided. After a little experimenting I discovered how to configure *VLab* to my needs and start grabbing. Believe me, this software is flexible!

For a start, there are loads of options. Want an on-screen monitor to see what's happening with your video source? No problem, though it's always in black and white for speed. Want to check that you just grabbed the right picture? No problem – configure the Preview screen, which is scalable, windowable, B&W, colour or displayed on Harlequin. Want to grab in hi-res colour? No problem, choose from full-frame, colour, hi-res, and set the image size to anything up to full-frame overscan! And there's more, in the shape of colour, brightness, contrast and gamma correction and chrominance, luminance and noise filtering.

AUTO PREVIEW

Grabbing is effected by defining the required screen format, then simply hitting a hot-key or a mouse click on a gadget. If auto-preview is selected, a representation of the grabbed YUV image will appear on screen, in an Amiga mode of your choice. The YUV image will remain in the *VLab*'s buffer until cleared or replaced by a new grab.

Sometimes a problem arises in

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Just why is this feature so useful? Often the easy way to make an animation do what you want is to construct it in reverse from its end frame to its start. An example would be a scratchback sequence where a logo has to build up on to screen. It is far easier to start at the last frame and work back, erasing parts from the finished logo, arriving at a blank screen. Now the frames all have to be played backwards to get the correct effect. This is no problem with *DPaint*, but where a single frame rendering system is in use, the images may have to be renamed before recording to videotape, or the logo disappears *off* screen, rather than appearing *on* screen. Reverse naming becomes a cinch.

Another useful task is to batch copy a set of named files. This could be from one directory to another, or to the same directory, as an option for renaming the files is included. This function saves time spent flipping between a housekeeping program like *SID* and *Reverser*.

Reverser's last trick is to be able to shift the numbering of a file sequence using an offset added to the end of a name. Typing Frame+5 will renumber all the current frames and add five to each of them. Negative offsetting is also available.

SAY WHAT?

Reverser also has a built-in, though dubious, novelty. It talks to you while it works! Just when you thought you'd never hear the wonderful metallic drone of *Thiz is Amiga speaking* ever again. My recommendation – turn the volume down, unless you're an android.

Reverser was not without its odd problems though. Its device requester didn't recognise my DH2 hard drive partition. However, a quick call to Alternative Image resulted in a bug swatting team being deployed – I'm told this problem has now been eradicated, along with a couple of other bugettes.

My conclusions? *Reverser* is *not* a wind-up, despite the flippant packaging. It takes the strain out of tasks which should be simple but which are actually fiddly, saving frustration and time-wasting. *Reverser* multitasks and should run on any Amiga. If you are a serious animator I recommend *Reverser* as a tool you really shouldn't be without.

SHOPPING LIST

Reverser by ParcSoft £10.00
Available from Alternative Image Prods
6 Lothair Road,
Aylestone,
Leicester LE2 7QB
☎ 0533 440041

CHECKOUT REVERSER

Ease of Use ●●●●●
Any easier and it would run itself.

Documentation ●●●●○
Forest-savingly brief. Almost to the point.

Price ●●●●●
It's cheaper than some shareware!.

Overall rating ●●●●○
A must have for animators.

PS: I checked with Parcsoft and the version for the Armitage Shanks probably won't be ready for a while yet. So don't hold your breath...

SCALA 2.0 LAUNCHED

***Scala* drew the crowds as the latest version of the Amiga's leading multimedia software was unveiled at the MultiMedia Show, in London.**

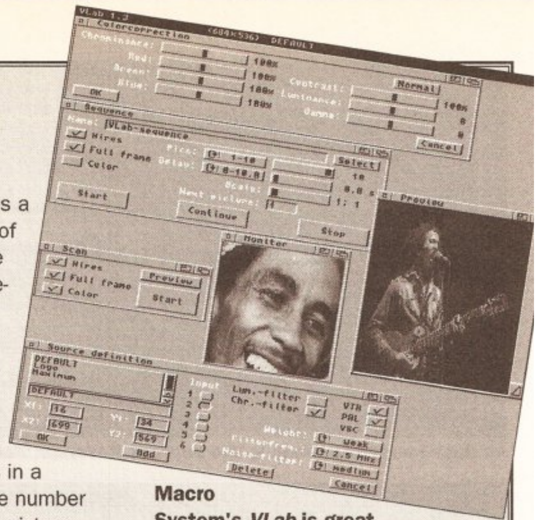
Aptly named *Scala MM2.00* (MM for MultiMedia), a stunning array of new features has been incorporated into what is already the software choice for many presentation professionals. Enter the Scala Shuffler, where iconified images can be cut and pasted for easier and faster editing, more transitions, including flip, stretch and flow, and add improved text handling, fast animation and picture loading from hard disk, synchronised playback of sound samples, DCTV support and, most importantly for presentation managers, on-the-fly timing recording, so that a presentation can now be timed to the millisecond simply by clicking the mouse.

Another new feature is Scala EX, where modules are added to expand the program's capabilities to control such applications as Laserdisc, MIDI, CDTV and ARexx ports. New modules are easily added when available.

The cost for *Scala MM2.00*, which will be in the shops by the time you read this is, is £395 + VAT. Upgrades will be available to registered users. Judging by the amazing *Scala* demo that was running on the Commodore stand it looks like the future of multimedia on the Amiga is secure.

For further information contact Scala UK Ltd on 0920 444294 or your local software dealer.

continued from page 70



Macro System's *VLab* is great for videographers wanting to grab a slice of the action

grabbing live video where movement between the consecutive fields which make up the frame causes a very noticeable juddering of parts of the image to take place. By using *VLab*'s De-Interlacing command it is possible to resolve the grab into a stable picture. The downside to this is that there is some quality loss because the de-interlacing also results in a significant reduction in the number of lines used to make the picture.

CHOICE OF FORMATS

For Amiga owners who don't have access to a 24-bit display device, such as the Harlequin, *VLab* can convert the buffered YUV grab into a number of standard Amiga IFF formats as well as IFF24. So anything from 16 colour hi-res to 4096 HAM interlace can be saved for future use, though of course the image quality will be less than that of either YUV or 24-bit formats.

While *VLab* excels in grabbing single images, it can also grab sequences, though the speed at which it does this is dependent upon the size and format chosen for capture.

Anything like real-time, 25 frames per second, grabbing can only be approached when the desired (output) image is kept small and/or in low-resolution monochrome. This is not the *VLab*'s fault, rather that the Amiga simply cannot shift data at a fast enough rate internally and even with an accelerated Amiga it is probably impossible to achieve both high quality and high-speed when sequence grabbing. A solution to this shortcoming is to use a video deck capable of single frame jogging and perfect freeze and grab the images one by one to build up a sequence which can then be manipulated/animated etc.

Once grabbed, the sequence can be de-interlaced and converted to images in the chosen Amiga IFF format by using the provided ARexx "SequencetoAmiga" script. Of course, this necessitates the use of ARexx, but since this is supplied with WB2.04 there is no excuse for not using it.

RESTRICTIONS

VLab is currently only suitable for A1500/2000/3000 Amigas in which the 2.04 operating system is installed.

A hard drive is almost essential, as *VLab* produces files which can easily be over 550K in size. An accelerator would also help greatly, as processing from native YUV format to Amiga format can otherwise take several minutes.

Finally, I have to say that I really enjoyed using *VLab*, and that it could have a lot of practical uses, even though its maximum resolution (720 x 580) is actually a little shy of full PAL overscan (768 x 580), which could present problems for full-screen video needs. Even so, I strongly recommend that you take a look at *VLab* if you need a serious, fast-scan video digitiser.

Gary Whiteley can be e-mailed as drgaz@cix.compulink.co.uk.

SHOPPING LIST

VLab £299
by Macro System
Distributed in the UK by:
Amiga Centre Scotland,
Harlequin House,
Walkerburn,
Peebleshire EH43 6AZ
☎ 089687 583

CHECKOUT VLAB

Documentation ●○○○○
Yes, but all in German.

Quality ●●●●●
Extremely high quality grabbing.

Speed ●●●○○
Instant grabs, but can be slow saving to Amiga formats.

Price Value ●●●●○
VLab represents very good value for money.

Overall rating ●●●●○
A damn fine frame-grabber.

Thanks to Meridian Film and Video in Paddington for use of their edit suite during some of the testing of *VLab*.

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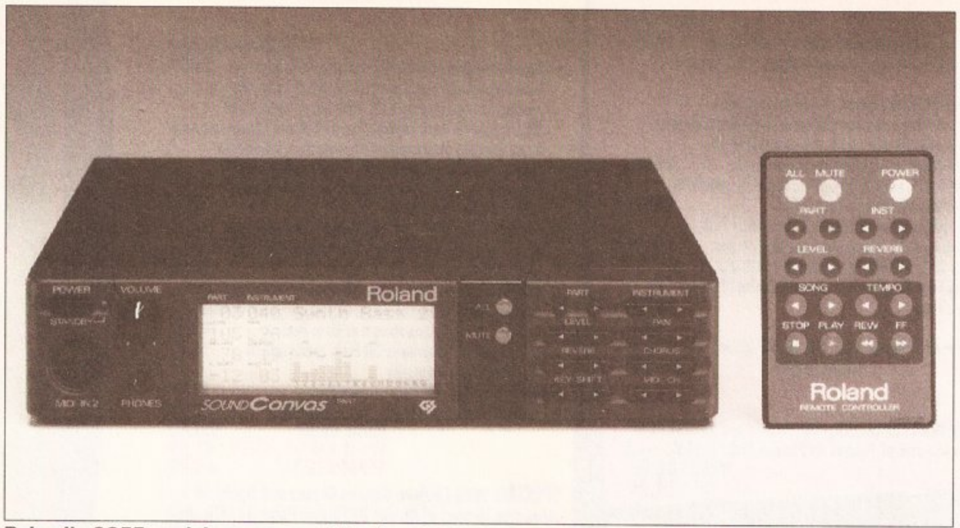
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Roland's SC55 module was one of the first GS compatible units to arrive on the MIDI scene

Paul Overaa provides a no-nonsense introduction to the ideas behind the Roland GS standard and takes a look at some of the ultimate in sequencing 'cheats'

ROLAND RATIFICATION

Roland's GS standard is hitting the MIDI/Music sequencing arena in a big way. The initials GS are now being whispered by MIDI users all over the world. Why? It is because Roland's GS Standard looks set to solve the largest of the remaining MIDI portability problems. The best way to set the scene for some introductory GS explanations however is to look at the problems that it is going to solve.

The standardisation offered by MIDI itself opened up a wealth of musical possibilities but despite the fact that instruments from different manufacturers can be linked together very easily there was one area where a problem has remained... the relationship between the sounds that you hear on one particular synth or sound module (and the commands or voice-memory-slots that are related to them), and the equivalent characteristics on another manufacturer's unit.

SOUND FLEXIBILITY

The difficulty stems, as we've seen in earlier installments, from the fact that MIDI notes are timbreless, ie they're not specifically related to any particular sound or synthesizer voice. In many ways this is good because it offers a lot of flexibility – you can for instance record a melody with your synthesizer set up for a flute sound but if, before playing it back, you change the synthesizer's voice to say a piano sound then the melody you recorded will play back sounding like a piano. Such changes can even be done by remote control by getting the sequencer to transmit program-change (patch-selection) messages.

Program change numbers, as originally envisaged by the committee that formulated the MIDI specification, had nothing directly to do with the various audible sounds that a synthesizer can make. In fact it was felt that, given the infinitely wide range of sounds that all synthesizers can produce plus the fact that many voice settings would be user-programmable anyway, it would not be feasible to implement any scheme which involved associating a given program change number with a particular type of sound.

Manufacturers were then rather left to their own devices as far as the program-change <—> voice correspondence was concerned. The result, as most MIDI users will be only too painfully aware, is an annoying situation whereby a program change #70 message might select a flute voice on one synthesizer, yet the same message sent to another synthesizer might select an accordion sound.

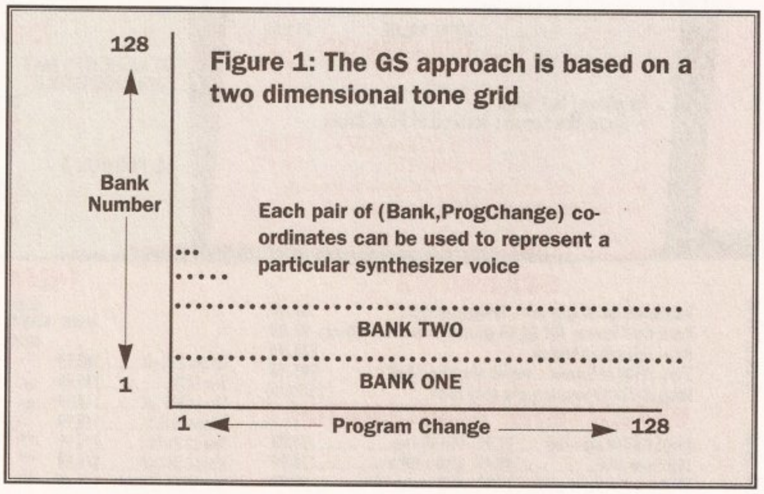


Figure 1: The GS approach is based on a two dimensional tone grid

As far as reconfiguring new pieces of equipment to suit existing patch/voice assignments, most synths and modules are reasonably flexible. So, for the lone MIDI user, working with his own data, these types of snags are not the end of the world. The difficulties however do increase when a user starts to use lots of sequences created by other people. It is simply not practical to keep changing your system voice-configurations each time you wish to use someone else's sequence data. The lack of drum-voice/drum-note standardisation (which was discussed in *Amiga Shopper* issue 10) makes life equally awkward on the percussion front and even if you opt for what is perhaps the most useful approach, namely re-editing the sequence data so that it conforms to the voice/channel/drum-note arrangements that you have adopted, it can still be quite a job unless you are MIDI literate.

STANDARD NEEDS

These particular problem areas were identified some time ago with many companies realising that the lack of standardisation in this area was holding back the formation of a large 'pre-recorded sequenced music' market. Apart from the obvious things like 'music minus-one' type songs (ie backing sequences where you just add the melody), and MIDI versions of instrumental music, there are a number of other areas to be explored...

Imagine having song sequence data in a form that was so

Figure 2: Two recently defined MIDI controller messages

Status	Data-byte-1	Data-byte-2
Bn hex	0 hex	Bank Select MSB (most significant byte)
Bn hex	20 hex	Bank Select LSB

standardised that you'd be able to play it on your MIDI equipment in much the same way as you'd play a CD not having to worry about what equipment it was actually recorded on or what types of controller and program change messages were being used!

Such a 'non-musician' based MIDI market is potentially massive and it includes things like computer game music, CD and MIDI media formats, music, educational and business presentation software, and integrated audio-visual (AV) equipment. These types of applications mean big bucks and since it is the lack of a generally available voice/patch and drum note standard that is holding things back it's not surprising that a lot of effort is now going into developing workable solutions to the problems.

It is, in fact, exactly these issues that the Roland GS standard addresses. To start with, the standard specifies a Tone Map which defines the basic instrument tones along with assigned program change numbers. The program change ideas have however been expanded so that sounds (voices) can be defined on a two dimensional grid a bit like that shown in Figure 1...

THE GS TONE MAP

In actual fact the GS tone map is rather more complex than that shown in Figure 1. By defining or reserving the first 64 banks on the 'bank x program-change' grid the GS standard has allowed for 8192 map defined voices (64 banks of 128 sounds) and they've been arranged in a particularly useful way. Base level preset sounds, called 'Capital Tones' reside in program bank 1 with banks 2 to 8 being reserved for variations of those main bank 1 tones.

Banks 9, 17, 25, 33, 41, 49 and 57 are reserved for use as sub-capital tones (sounds which are related to the capital tone but different enough to be usefully described by some other name). Intermediate banks again offer variations for those tones so banks 10-16 for instance would contain variations of the bank 9 sounds. This arrangement has been chosen to allow GS based synths and sound modules to approximate any GS sounds that they do not implement. A module following this arrangement could, if asked to switch to a particular tone variation in a given bank which it did not have, could use the sub-capital tone as an approximate equivalent. If that bank wasn't implemented, the primary capital root tone could be used so at least the final voice chosen would be broadly similar to that designated by the original composer of the sequence. One exception to this 'fallback' scheme concerns the program change area from 121-128... this has been reserved for sound effects. The other exception concerns banks 65-127 which have been designated as an area for user-defined sounds. Bank 128 has been reserved for Roland's MT-32 module factory set sounds.

There are incidentally two recently defined additional MIDI controller messages that allow for remote bank selection using controllers 0 and 32 (20 hex). The status byte is the standard controller Bn hex and the messages take this form... see figure 2 on the previous page.

The GS standard uses only the MSB part, ie controller 0, to ask a MIDI unit to select a particular sound bank. A tonal position on the two-dimensional GS grid can be remotely defined by sending a Bank Select message and a program change message.

As mentioned earlier the GS standard also defines drum-note correspondences. All GS equipment must support the standard set (or the minimum #35-#81 drum subset of it) but in addition to this provision has been made for alternative drum set support with individual kits selectable by program change commands.

If you take a look at Table 2, you will see that it provides the drum note assignment data for the standard set together with an orchestral set and a TR808 drum map for comparison...

In addition to this, the GS Standard recommends that channels 10 and 1-6 be regarded as the main channels with the suggested usage being as follows...

MIDI Channel	GS Part
10	Rhythm Drums
1	Piano
2	Bass
3	Chord
4	Melody
5	Sub-Chord
6	Sub-Melody

There is of course quite a bit more to the GS philosophy than I've covered in this introduction. The standard lays down a variety of rules concerning the polyphony of each sequence part and provides a number of other specialist controller-based MIDI messages that help eliminate the need for including manufacturer-specific SYSEX data within sequences. It also suggests the use of, and the format for, standardised count-in sequences and so on (most of this technical information is of interest only to GS developers).

Table 1: Roland SC55 GS Sound Module – Capital Instrument Tone Information Chart

Voice Number	Voice Name	Voice Number	Voice Name
(Piano)		(Lead)	
1	Acoustic Piano 1	65	Soprano Sax
2	Acoustic Piano 2	66	Alto Sax
3	Acoustic Piano 3	67	Tenor Sax
4	Honky Tonk Piano	68	Baritone Sax
5	Electric Piano 1	69	Oboe
6	Electric Piano 2	70	English Horn
7	Harpsichord	71	Bassoon
8	Clavinet	72	Clarinet
(Chromatic Percussion)		(Pipe)	
9	Celesta	73	Piccolo
10	Glockenspiel	74	Flute
11	Music Box	75	Recorder
12	Vibraphone	76	Pan Flute
13	Marimba	77	Bottle Blow
14	Xylophone	78	Shakuhachi
15	Tubular Bell	79	Whistle
16	Santur	80	Ocarina
(Organ)		(Synth Lead)	
17	Organ 1	81	Square Wave
18	Organ 2	82	Saw Wave
19	Organ 3	83	Synth Calliope
20	Church Organ 1	84	Chiffer Lead
21	Reed Organ	85	Charang
22	Accordion Fr	86	Solo Vox
23	Harmonica	87	5th Saw Wave
24	Bandneon	88	Bass & Lead
(Guitar)		(Synth Pad. Etc)	
25	Nylon String Gtr	89	Fantasia
26	Steel String Gtr	90	Warm Pad
27	Jazz Gtr	91	Polysynth
28	Clean Gtr	92	Space Voice
29	Muted Gtr	93	Bowed Glass
30	Overdrive Gtr	94	Metal Pro
31	Distortion Gtr	95	Halo Pad
32	Guitar Harmonics	96	Sweep Pad
(Bass)		(Synth SFX)	
33	Acoustic Bass	97	Ice Rain
34	Fingered Bass	98	Soundtrack
35	Picked Bass	99	Crystal
36	Fretless Bass	100	Atmosphere
37	Slap Bass 1	101	Brightness
38	Slap Bass 2	102	Goblin
39	Synth Bass 1	103	Echo Drops
40	Synth Bass 2	104	Star Theme
(Strings/Orchestra)		(Ethnic)	
41	Violin	105	Sitar
42	Viola	106	Banjo
43	Cello	107	Shamisen
44	ContraBass	108	Koto
45	Tremolo Strings	109	Kalimba
46	Pizzicato Strings	110	Bag Pipe
47	Harp	111	Fiddle
48	Timpani	112	Shanai
(Ensemble)		(Percussive)	
49	Strings	113	Tinkle Bell
50	Slow String	114	Agogo
51	Syn Strings 1	115	Steel Drums
52	Syn Strings 2	116	Woodblock
53	Choir Aahs	117	Taiko
54	Voice Oohs	118	Melo Tom 1
55	Syn Vox	119	Synth Drum
56	Orchestra Hit	120	Reverse Cymbal
(Brass)		(SFX)	
57	Trumpet	121	Guitar Fret Noise
58	Trombone	122	Fl. Key Click
59	Tuba	123	Seashore
60	Muted Trumpet	124	Bird
61	French Horn	125	Telephone 1
62	Brass 1	126	Helicopter
63	Synth Brass 1	127	Applause
64	Synth Brass 2	128	Gun Shot

Table 2: Roland SC55 GS Sound Module – Drum Assignment Information Chart. (Note: Where table entries are blank the drum name is the same as the Standard Percussion Sound)

Prog # 1		# 26	# 49
STANDARD SET		**TR808 SET**	**ORCHESTRA SET**
Note Name	**Tone Name**	**Tone Name**	**Tone Name**
D#1 (27)	High Q		Clsd Hi Hat
E1 (28)	Slap		Pedal Hi Hat
F1 (29)	Scratch Push		Open Hi Hat
F#1 (30)	Scratch Pull		Ride Cymbal
G1 (31)	Sticks		
G#1 (32	Square Click		
A1 (33)	Metronome Click		
A#1 (34)	Metronome Bell		
B1 (35)	Kick Drum 2		Concert B/D 2
C2 (36)	Kick Drum 1	Bass Drum	Concert B/D 1
C#2 (37)	Side Stick	Rim Shot	
D2 (38)	Snare Drum 1	Snare Drum	Concert S/D
D#2 (39)	Hand Clap		Castanets
E2 (40)	Snare Drum 2		Concert S/D
F2 (41)	Low Tom 2	Low Tom 2	Timpani F
F#2 (42)	Closed Hi-Hat	Clsd H/Hat	Timpani F#
G2 (43)	Low Tom 1	Low Tom 1	Timpani G
G#2 (44)	Pedal Hi-Hat	Clsd H/Hat	Timpani G#
A2 (45)	Mid Tom 2	Mid Tom 2	Timpani A
A#2 (46)	Open Hi-Hat	Open H/Hat	Timpani A#
B2 (47)	Mid Tom 1	Mid Tom 1	Timpani B
C3 (48)	High Tom 2	Hi Tom 2	Timpani c
C#3 (49)	Crash Cymbal 1	Cymbal	Timpani c#
D3 (50)	High Tom 1	Hi Tom 1	Timpani d
D#3 (51)	Ride Cymbal 1		Timpani d#
E3 (52)	China Cymbal		Timpani e
F3 (53)	Ride (on Bell)		Timpani f
F#3 (54)	Tambourine		
G3 (55)	Splash Cymbal		
G#3 (56)	Cowbell	Cowbell	
A3 (57)	Crash Cymbal 2		Concert Cymbal 2
A#3 (58)	Vibraslap		
B3 (59)	Ride Cymbal 2		Concert Cymbal 1
C4 (60)	High Bongo		
C#4 (61)	Low Bongo		
D4 (62)	Mute High Conga	High Conga	
D#4 (63)	Open High Conga	Mid Conga	
E4 (64)	Low Conga	Low Conga	
F4 (65)	High Timbale		
F#4 (66)	Low Timbale		
G4 (67)	High Agogo		
G#4 (68)	Low Agogo		
A4 (69)	Cabasa		
A#4 (70)	Maracas	Maracas	
B4 (71)	Short Whistle		
C5 (72)	Long Whistle		
C#5 (73)	Short Quiro		
D5 (74)	Long Guiro		
D#5 (75)	Claves	Claves	
E5 (76)	High Wood Block		
F5 (77)	Low Wood Block		
F#5 (78)	Mute Cuica		
G5 (79)	Open Cuica		
G#5 (80)	Mute Triangle		
A5 (81)	Open Triangle		
A#5 (82)	Shaker		
B5 (83)	Jingle Bell		
C6 (84)	Bell Tree		
C#6 (85)	Castanets		
D6 (86)	Mute Surdo		
D#6 (87)	Open Surdo		
E6 (88)			Applause

PROGRAM CHANGE MESSAGES – A brief reminder

A program change command is a MIDI message which enables a synthesizer's current voice to be changed by remote control. A sequencer, by sending such messages, can therefore select suitable synthesizer voices without any manual changes needing to be made to the synthesizer controls. As likely as not your synthesizer will also transmit these messages whenever different voices are selected from the instrument's control panel.

The program message as defined by the MIDI standard is a two-byte message which takes this form...

Status byte	**Data byte**
1100 nnnn	00000000 – 01111111 (ie 0-127 decimal)

channel number

program change data value

This part of the status byte indicates that the message is a program change

The status byte identifies the message type and a MIDI channel. The trailing data byte gives a value from 0 to 127 decimal which indicates a program change value. These messages then allow the selection of one of 128 possible 'programs'. For instance, the two bytes C0 hex (decimal 192) followed by 0 hex (decimal 0) tells any unit set to MIDI channel 1 to change its program 0 voice arrangement setting.

Some synthesizers have a fixed program-change/voice relationship so that sending a program-change 1 message will always select a particular voice. Other units employ more flexible arrangements, often based on user-definable internally memorised tables. The benefit with this latter arrangement is that you can not only choose which voice a particular program change command will select, but you may also edit and change such tables as and when it becomes useful to do so.

MOVING TOWARDS A GOAL

The idea behind GS is that it will eliminate the need to edit sequence data to get it to sound right on different equipment.

The first piece of Roland equipment with the capability to support the GS standard was the SC55 sound module, although since then the list has grown to include CM300 and CM500 sound modules, a SCC1 PC sound card, the JV30 synthesizer the E70, E30 and E15 synthesizers and a number of other units.

OFF THE PEG MIDI

The GS standard is also catching on fast with a great many companies who are in the business of creating ready-made MIDI file song arrangements.

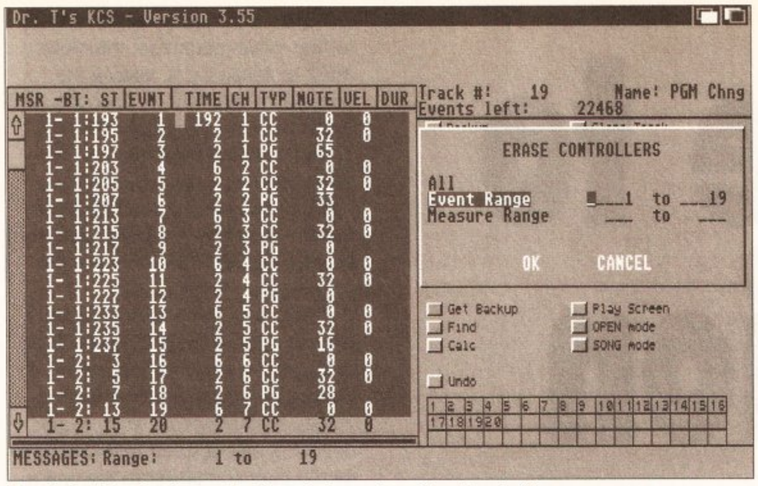
This brings me to the point that I should perhaps have mentioned right at the start of my musical GS wanderings – the GS philosophy will only work if the MIDI equipment has been built with the GS standard in mind.

At the moment most potential users of 'ready made' song sequences will not be using GS equipment but luckily this doesn't matter because, with a little inside info, non-GS users can convert sequences very easily.

All in all, editing GS sequence data to make it suitable for your MIDI set-up is no different from editing some other user's data. This, of course, is one of the reasons I've dealt with the GS voice and drum-map issues in the first place. Another reason is that on the following page I'm rounding off my recent notes about creating sequences the easy way by looking at the easiest possible approach... buying pre-written song arrangements (and guess what standard comes into the picture).

** ACKNOWLEDGMENTS **

Tables 1 and 2 are based on data originally provided by the Roland Corporation for use with the GS compatible Roland SC55 Sound Module. They have been reproduced by kind permission of 'Hands On' Midi Software Ltd.



Track isolated voice selection data makes the Hands On sequences particularly easy to edit

OFF THE SHELF *Sequences*

For some musicians, buying ready-made arrangements is the ultimate 'cheat', as far as sequenced music is concerned. But there is sometimes a good case for taking the easy way out. Here are some tips on how to get the best from some of the current offerings.

Over the last few issues I've talked about ways in which sequencer users can make life easier for themselves are far as song creation is concerned. We've seen how programs like *SuperJAM* can be used to build presentable arrangements and how pre-recorded fragments, such as are available with Gajits *Hit Kit*, can be used as building blocks. In passing I mentioned the ultimate option, namely buying ready-made, MIDI File arrangements for the songs you'd like to play. The benefits of this approach are reasonably obvious... You don't actually have to play the songs to use them and the arrangements will almost certainly be far better than you could create yourself. *And*, you don't have to spend time creating them! Despite these benefits it is only recently that this particular market has started to take off and one of the reasons has been that, previously, most users have had to carry out supplier-specific editing to get pre-arranged MIDI file material to work with their MIDI set ups. Of late this situation has improved no end, mainly because of the acceptance of Roland's GS standard. I've dealt with the nuts and bolts issues of GS elsewhere in the mag so if this is the first time that you've heard the term it might be worth reading the GS material first.

As far as using ready-made MIDI file sequences is concerned, one problem is getting the material in the right disk format. Nowadays a number of companies offer a whole range of material on Amiga format disks but to be honest this, for the Amiga user, is neither here nor there – utilities such as *Cross-Dos*, which can read and write PC and Atari ST format disks, have made the physical copying of files from PC/ST disks to Amiga disks simplicity itself.

CLOSE TO THE EDIT

Another problem, which the Roland GS standard attempts to solve, is the need for sequence editing. For the purposes of this article I'm going to be assuming that most Amiga musicians are not using GS orientated synths and modules and this means that some editing of GS sequences will be necessary. The good news is that instead of the previous situation, whereby you didn't really know what type of editing would be needed until you saw the sequence, with GS based material you will at least have a good idea of what will need to be done – the GS standard therefore, to some extent, helps non-GS equipment users as well!

By way of example I've picked two companies that specialise in producing ready-made song arrangements in MIDI file form. Here are some review-style notes coupled with a few technical points of interest...

HANDS ON MIDI SOFTWARE

Hands On offers a range of GG (chart) and MasterClass (classical) sequences. The current GIG library alone has around 250 titles including chart hits, big band and jazz material, 60s music, TV and film themes, country hits and a host of other goodies. I've used quite a lot of 'Hands On' material and there's no doubt that a lot of effort has been put into these arrangements – they really are very good. The effort has clearly paid off because Hands On was chosen to supply Roland itself with sequence data for worldwide distribution. incidentally, it was also Hands On which was chosen by the Education department of Commodore UK to supply *Music-X* based Amiga song versions.

The Hands On disk documentation is also good. As well as the MIDI file data itself, you'll get introductory series notes, information about relevant sequencing techniques and their relationship to overall GIG sequence arrangements, tone map and drum map assignment data, and details of the voices/drum-maps in use (these are GS based). The 'Standard MIDI file' of the Drum and Percussion tracks will also be provided with the drums separated onto their own individual tracks (eg Track 1 = Kick Drum, Track 2 = Snare, Track 3 = Closed Hi Hat etc).

FACTS ON FILES

Each song file will have an associated info file and these contain tempo data, time signatures and a complete breakdown of the data contained in each track. Playback channels, track names and a rough guide to when each voice sounds in relationship to sequencer bar numbers will also be included. If the song has words then lyric files will also be provided together with files that contain lyric sheet data coupled with bar indicator numbers to help synchronization.

Hands On, in line with GS guidelines, isolates its voice selection data into a 'program change' track. It's here that you'll also find the GS bank-select controller #0 messages and although these should be ignored by non-GS equipment you might feel happier erasing them (non-GS users will have to edit the program change commands on this track, so that voices related to the GS specified ones are selected. If you are not using a Roland compatible drum unit, you will need to edit the drum map assignments to suit your equipment.

STAGE ONE COMPUTERS

Stage One is another company which has built up a rock-solid reputation for supplying excellently programmed arrangements. Whether it's rock, country music, sixties songs, or up-to-date chart material you're after, you'll find something in its catalogue lists to 'whet your musical appetite'. If, incidentally, you are interested in taking the easy way out as far as drum programming is concerned, you might like to know that the Stage One volume 1 drum library contains over 700 drum patterns and volume 2 contains another 600+ patterns!

MAPS AND TRACKS

The Stage One material that I've seen to date is not GS standard as such but it is biased towards Roland-oriented standards. Roland drum maps are used and the types of sequence translations that most MIDI users may need to do are similar to those mentioned previously, although you may find with some arrangements that you have to remove a setting up sequence included for the benefit of Roland D10 and D110 users.

Although less disk documentation is provided with the Stage One material you will still get printed track sheets for many of the arrangements. Stage One offers a number of user group schemes and the benefit here is that not only can you get additional MIDI help but user-group discounts are offered on song and other MIDI file library material. AS

BUYING ADVICE

Hands On Midi Software Ltd
Any four chart hits (or two classical works) will cost £22.95 (plus £1.50 p&p). A demo disk or tape is available for £5.50 (plus p&p) and this is refundable against subsequent purchases. A range of formats (including Amiga disks) and specialised MIDI services are also available – for further details contact Hands On Midi Software ☎ 0705-221161.

Stage One Computers Ltd
Individual songs cost £7 inclusive of VAT and p&p. With four or more compositions the price falls to £5.50 each and if you are a Stage One User Group member that price becomes £4.50. Demo packs, drum libraries and a range of formats are provided but at the moment Amiga users are not directly catered for so you'll need to get ST format disks and use a program like *CrossDOS* to read them. Stage One also offers a range of specialist MIDI services – for details ☎ 0256 50259.

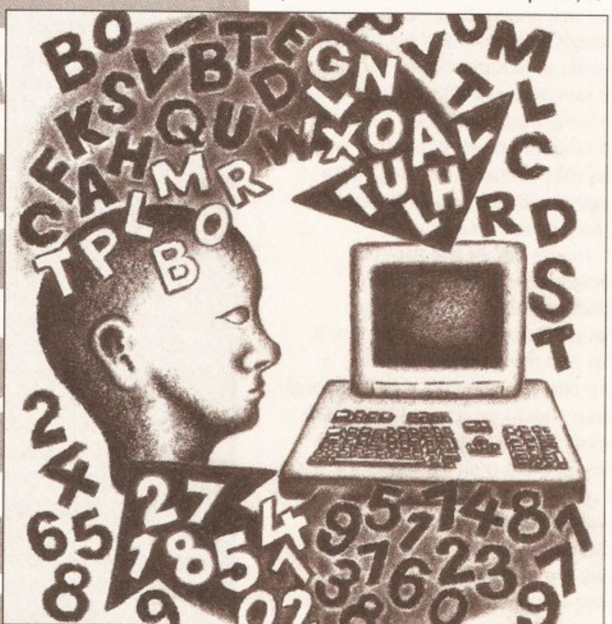
Recourse to recursion

Carrying on with his programming tutorial for beginners, Cliff Ramshaw explains the nitty gritty of a computer move generator for a noughts and crosses game

Most recursive routines consist of two parts: a part which decides when the recursion has come to an end, called a base case; and a recursive case, which performs some task and then calls itself. Last month I described the collection of procedures which together form the base case of the computer's move generator for our noughts and crosses program. This month I'll be describing the recursive case, so get those headache tablets ready.

The procedure that performs the recursion, that twists and turns in on itself in a twisty turny sort of way, uses a principle known as the 'minimax' strategy. Since AMOS is a little fussy about the names of its procedures, we'll actually call it MIMAX.

The minimax procedure works in what you may find a surprising way. Instead of trying to find the best possible move for the computer, it finds the move for the computer which will force the player into making the worst possible move. How does it to this? You might well ask. Well, I'll tell you...



The procedure relies on being given a score for a board position by STATIC, the procedure given last month. There are only three possible scores: +1 if the player under consideration has won, -1 if he or she has lost, and 0 if neither player has won. In other words, only a winning game position has a score, so there is no need to call STATIC unless the game is over. So the first part of MIMAX looks like this:

```
Procedure MIMAX[TURN]
Shared BOARD(),EMPTY
GAMEOVER
If Param=True
   STATIC[TURN]
   RESULT=Param
Else
```

This actually implements the base case of the recursion. If the game is over, then there is no need for any further recursion, so an immediate result can be assigned to the procedure, courtesy of the score given by STATIC, and the procedure terminates.

Notice how the parameter TURN is passed to MIMAX, meaning that the procedure can choose a move for the computer or the player with equal ease. The reason for this will become apparent later on.

CHOOSE... OR ELSE

Now, if the game isn't over, then the statements following the Else clause will be executed. These must make a move – in fact every possible move – and then decide which of them is the best.

This is done by checking every board position in turn and, if the position under consideration is empty, placing a piece in it. A score must be obtained for that particular move, and this is done by calling MIMAX – that is, by the procedure calling itself. If the move made has resulted in an end game situation, then a score will be immediately returned, if not, further recursion will take place before a score can be given.

Once a score has been received for the move just made, the move must be taken back, leaving the board as it was before. Then the next available move is made, until all possible moves have been accounted for and each one has a score corresponding to it. Of all of these, the only one we are interested in is the one with the lowest score. But why the lowest score?

Well, once MIMAX has placed a piece on the board and it calls itself to find out a score for that move, it reverses the sign of the parameter TURN. In other words, when it calls itself it is asking itself to find a move for the opposite player to the one it is currently dealing with. As a

> ***"The minimax procedure works by forcing the opponent to make the weakest move it can."***

consequence, the score that is returned to it will be a score for that other player (the bigger the score, the better the move it has found for the other player). Since the minimax strategy works by forcing the opponent to make the weakest move it can, it must select the move which gives the opponent the lowest score when it comes to his or her turn. So the lowest of the scores is used to select the best move for MIMAX. Following directly from the Else statement in the segment above, it looks like this:

```
LEASTSOFAR=255
For X=1 To 3
For Y=1 To 3
If BOARD(X,Y)=EMPTY
BOARD(X,Y)=TURN
MIMAX[-TURN]
BOARD(X,Y)=EMPTY
If Param<LEASTSOFAR
LEASTSOFAR=Param
End If
End If
Next Y
Next X
RESULT=-LEASTSOFAR
End If
End Proc[RESULT]
```

The variable LEASTSOFAR is used to keep track of the move with the smallest score. Initially it is set to a suitably high value so that the first move checked, no matter what its score, will return a value lower than this. At any rate, if the current score is lower than that in LEASTSOFAR,

then LEASTSOFAR is instead set to the value of this score.

After all of the possible moves have been tried (and subsequently erased), then LEASTSOFAR contains a score corresponding to the move which forced the opponent into making the worst move for him or her and consequently the best move as far as the player in question is concerned.

THE FINAL COUNTDOWN

This final score must be reversed before it is returned as a result of the subroutine, since it represents the lowest score for the opponent (possibly negative) and must therefore represent the highest score for the player in question (which must obviously be positive). To this end the result returned is equal to the negative of the lowest score.

You've probably noticed that the procedure MIMAX doesn't actually remember any particular move, merely the lowest score from all of the possible moves. This is because another procedure is used to keep track of the best move so far, and MIMAX is only called in order to evaluate each of the moves that this other procedure chooses.

This other procedure, called BESTMOVE, is in fact very much like MIMAX. It is the thing that initiates the whole recursive process.

The main difference is that it must keep track of the best move made. To do this it needs to make use of two extra variables, XBEST and YBEST. These are the co-ordinates on the board of the best move found so far. They are shared between the main program and the BESTMOVE procedure since this is the easiest way for BESTMOVE to modify them.

The procedure BESTMOVE is as follows:

```
Procedure BESTMOVE[TURN]
Shared
BOARD(),XBEST,YBEST,EMPTY
GAMEOVER
If Param=True
XBEST=0 : YBEST=0
Else
LEASTSOFAR=255
For X=1 To 3
For Y=1 To 3
If BOARD(X,Y)=EMPTY
BOARD(X,Y)=TURN
MIMAX[-TURN]
BOARD(X,Y)=EMPTY
If Param<LEASTSOFAR
LEASTSOFAR=Param
XBEST=X
YBEST=Y
End If
End If
Next Y
Next X
End If
End Proc
```

Just as with MIMAX, the first thing the procedure does is to check whether the game is over. If it is, then there is no point in BESTMOVE making another move, so it simply sets XMOVE and YMOVE to zero – dummy values which inform the calling program that no move has been chosen.



CHECKING OUT

If the game isn't over, then, as with MIMAX, the procedure goes through each of the possible moves in turn and checks them out. Notice how, after tentatively making each move, MIMAX is called to see how the other player might best respond (done by passing the negative of the variable TURN as a parameter).

Again, the lowest score is the one that is accepted, since this means the opponent has been forced to make a poor move (note that we are not choosing a poor move for the player, rather the move for the computer which forces the player, even though he or she is attempting to make the best move possible, to make a relatively poor move).

When the current score is compared against the variable LEASTSOFAR, if it is found to be lower not only is LEASTSOFAR updated to its value, but XBEST and YBEST are assigned the co-ordinates of the current move, thus recording that particular move.

So, once all of the moves have been made, XBEST and YBEST contain the co-ordinates of the best possible move. There is no need for BESTMOVE to return a value – the calling program knows that BESTMOVE has decided on the best possible move to make, so all it is interested in are the co-ordinates of that move, which are obtained from the shared variables XBEST and YBEST.

The piece of code that initiates all of this and acts on the results is shown below:

```
Repeat
PMOVE
DISPLAY
GAMEOVER
If Param=False
XBEST=0
YBEST=0
BESTMOVE ↵ [NOUGHT]
If XBEST<>0
BOARD ↵
(XBEST, ↵
YBEST)= ↵
NOUGHT
DISPLAY
End If
End If
FULL
A=Param
WON[NOUGHT]
B=Param
WON[CROSS]
C=Param
Until ↵
(A+True)
or(B=True)
or(C=True)
```

So as you can see, the main loop of the game repeats, first getting a move from the player and then getting a move for the computer with BESTMOVE, until such a time as the game is over.

RUNNING IN CIRCLES

The problem with recursive routines is that they are initially difficult to follow.

Whereas with a non-recursive procedure you can start reading at the top of the listing and follow it through to the bottom, just as the computer would do if executing it, this isn't really practical with a recursive routine because of the number of times it calls itself. You very quickly lose your way and get confused.

It's important instead to think of a recursive routine as something which operates on a set of things passed to it and returns a value depending on the result of those operations. In other words, think of it in a more general sense, don't be concerned with each individual statement.

If, in the example above of MIMAX, there were only one possible position left to move into, then you could quite happily work through the program line by line.

You could see that this move would be taken, and that the procedure would then be called again but with the opponent in mind. In this case, the call to GAMEOVER would reveal that the game was indeed over, and the call to STATIC would give a score for the end position.

POSITIVE MOVES

Suppose that the computer had made a move which gave it a row of three. Then when MIMAX was called again, with the human player as its subject, STATIC would return a value of -1, since the human had lost. The recursion would then finish and further execution in the incarnation of MIMAX which called the other would continue. In this case, because there were no other possible moves the one with the value of -1 would be chosen. At the end of the procedure, a value of +1, not -1, would be returned, since a negative number for the human player is a good, and therefore a positive, thing for the computer.

But if there were several possible moves to be made on the board, you can see how much more complicated things could get (go on, try it!). Each call to MIMAX would result in several more calls being made to MIMAX, multiplying exponentially depending on the number of moves available.

> ***"...a negative number for the human... is a good and therefore positive thing..."***

Suffice instead to say that if there are no possible moves to be made, then MIMAX will return a value related to who has already won. Similarly, if only one move is possible then MIMAX will choose this move and give a score to it.

In the case of two moves being available, then MIMAX will choose the move most detrimental to the opponent, as you can also check by working through it. Having satisfied yourself that this is the case, you can then be sure that the procedure will work in more general circumstances, for any number of possible moves up to and including the maximum nine.

COMING NEXT MONTH

Anyway, that's enough recursion for one month. Next month I'll tidy up a couple of loose ends and give you the listing in full, along with a couple of improvements and modifications. Until then, happy hacking. AS

THANKS... Many thanks to Mark Harman and Sebastian Danicec of PNL and mlaskey@CIX for their aid in debugging this program.

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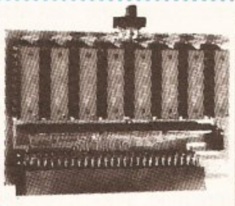
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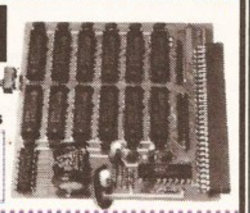


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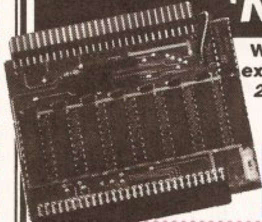
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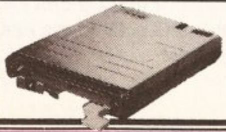
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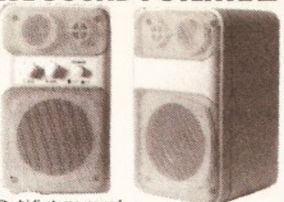


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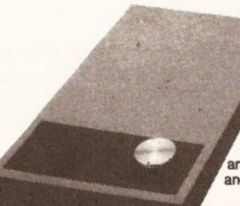


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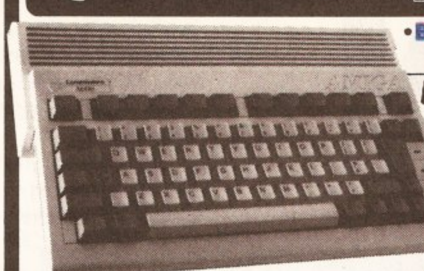
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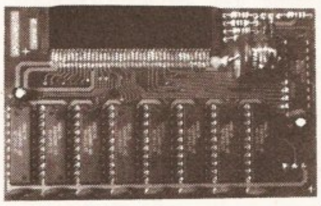
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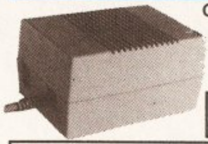
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ACTION AMOS

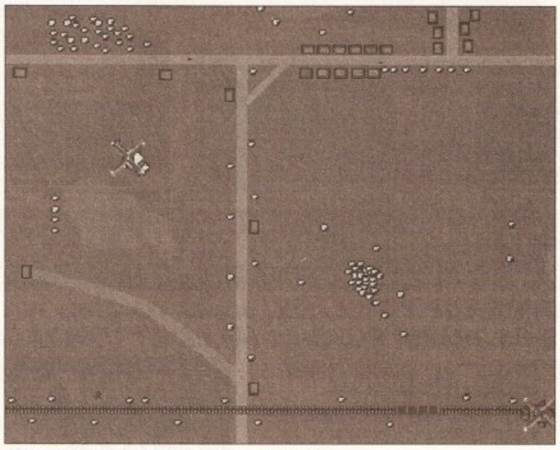
Sprite animation, software scrolling routines and AMOS answers – all this and more... Jason Holborn's the man with his finger on the pulse...

Having to write all the code that appears in the AMOS column is a difficult task – even for an AMOS addict such as myself, so I thought it was about time I dragged in a little help from the experts. And who better than the people who made AMOS possible, Europress Software. Thanks to Richard Vanner at Europress, every month we'll be featuring a snippet of code written by the talented programmers at Europress Software. Over the next few pages, we'll also be learning how to get those sprites moving in your games programs, looking at software scrolling in our AMOS for beginners section as well as solving some of your queries.

The aim of the new Europress code section will be to get the lads at Europress to write a bit of code which either solves a problem that many of you may have or code which shows a new technique that can be achieved within AMOS. Of course this sort of thing is nothing new to the AMOS column (after all we've been solving your AMOS problems since issue 1), but what makes it special is that the code which we print will be written by the programmers who made AMOS possible.

If you're particularly stumped and really need a bit of code written, write to me and I'll pass your request on to the lads at Europress. Hopefully, if they can drag themselves away from the local pub (only joking!), they'll get on the job and the results of their efforts will be printed here within *Amiga Shopper*. Obviously we haven't got a lot of space to play with, so don't expect complete games and utilities. If you want that sort of thing, keep your eyes on the Listings pages of *Amiga Shopper*.

The routines you request must be fairly short and straight to the point. It must therefore be possible for Europress' programmers to solve the problem in no more than 25 lines of code. If they don't think it's possible to solve it with 25 lines of code, we won't have the space available.



If you're looking for a good AMOS produced game, look no further than *RattleSnake* on AMOS PD disk 385

AMOS PD LATEST

If you want to see what AMOS is capable of in the hands of an experienced coder, check out these latest disks from the official AMOS PD library (0792 588156).

The AMOS PD library is an absolute Aladdin's cave full of useful AMOS related utilities, demos and games. Here's a run-down of the latest disks to land on my desk.

• APD398
Cubic Demo
Shockwave's latest product is an audio visual feast which really demonstrates the power of AMOS. Weird scrolls and copper tricks are only a couple of the marvels that will assault your senses.

• APD385
Games
Games aren't usually the domain of *Amiga Shopper*, but why not check out this disk? It's always worth checking out a few games especially if you're in the business of designing your own games. It contains three games – *Rattlesnake* (a two player helicopter duelling game), Sky Chaser (a rather naff maze chase game) and Mazeman (possibly the best PD PacMan game yet).

• APD394
Amos Programs
This disk contains no fewer than nineteen different AMOS programs in source format. Load them into AMOS, run them and learn from them. Definitely a recommended purchase for AMOS beginners.

• APD384
Wots-Its-Name
A word guessing game based on the TV quiz show *20 Seconds.* Simple, but very entertaining.

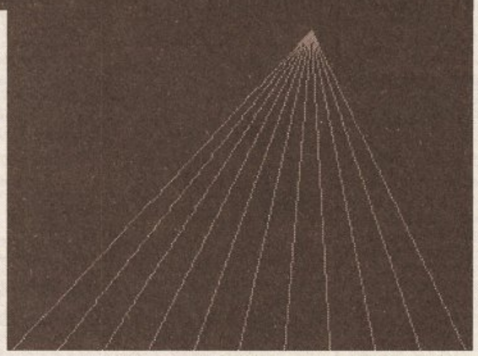
• APD378
Structured Insanity 2
Fanatix is generally known as the king of AMOS coding and this latest demo certainly does nothing to tarnish that reputation. Recommended.

EUROPRESS LASER ROUTINE

This month's rousing routine has been written by Darren 'Barney' Skirvin, a very talented chap who many of you may already have spoken to. Darren works on the AMOS help-line at Europress, sorting out your AMOS problems and suggesting solutions.

The program generates a sort of psychedelic strobing laser effect like those you see on *Top Of the Pops* and at Rave parties (or so I'm told!). The code serves as a nice demonstration of how to draw lines and generate random numbers.

Next month the Europress lads will be writing a useful section of code that will enable you to add inertia to sprites. This month though, have a play with the code below. Type it in and enjoy.



This month's Europress special will allow you to add psychedelic laser effects to your programs

```
' SMALL LASER DEMO
' By Darren 'Barney' Skirvin
' at Europress Software
'
Curs Off : Hide
Cls 0
Do
'
PV=Rnd(150)
PH=Rnd(300)+10
V=Rnd(20)+15
Colour 2,Rnd(10000)
'
' ** MAKE LASERS GO DOWN
'
For P=10 To 240 Step 10
For X=10 To 319 Step V
Ink 2
Draw PH,PV To X,P
Next X
'
' ** THIS BLANKS THE LASER ↵
OUT
'
For X=10 To 319 Step V
Ink 0
Draw PH,PV To X,P
Next X : Next P
'
' ** MAKE LASERS COME BACK UP
'
For P=240 To 1 Step -10
For X=10 To 319 Step V
Ink 2 : Draw PH,PV To X,P
Next X
'
' ** BLANKS THE LASERS OUT
'
For X=10 To 319 Step V
Ink 0 : Draw PH,PV To X,P
Next X : Next P
Loop
```

GAMES PROGRAMMING
Sprite animation

It's obvious from the many letters that I receive every month that animation is one aspect of AMOS programming which confuses many would-be games programmers. Unfortunately though, this is not a subject that you can afford to ignore. Just check out any one of the thousands of arcade games which are available for the Amiga and you'll notice that animation plays an important role in their visual attraction.

Even fairly basic games boast animation in one form or another – whether it's an animated background or a cycled series of frames that brings life to the main sprite, incorporating animation is very important indeed.

AMOS provides a plethora of commands which can be used to animate sprites or sections of the screen, but this month we're going to be concentrating on breathing life into sprites and bobs. This can be achieved using basically two different methods...

The first technique is exactly the same as the technique used by professional games programmers but the second, and arguably more powerful, uses AMOS' AMAL animation language (*Easy AMOS* programmers will have to use the first technique because *Easy AMOS* doesn't offer AMAL).

LISTING 1

```
' *** Standard Animation ↵
Demo ***
'
Screen Open ↵
0,320,200,16,Lowres
Cls 0 : Flash Off : ↵
Double Buffer
'
Load "SOURCE:Ball.ABK"
Get Sprite Palette
Bob 1,0,100,1
FRAMECOUNT=1
DELAY=0
Do
Add COUNT,1,0 To 320
Bob 1,COUNT,100,FRAMECOUNT
Add DELAY,1,1 To 4
If DELAY=4
Add FRAMECOUNT,1,1 To 8
End If
Wait Vbl
Loop
Wait Key
```

A REFRESHING ANIMATION

The first method of animating sprites shown in Lisitng 1 uses the time honoured technique which has been used on every micro since the ZX81 (OK, possibly a slight exaggeration there, but what do you expect from a journalist?). This method of animating sprites does not use any form of fancy interrupts or animation language, instead the sprites are updated within the main game loop, the section of code which forms the heart of every game.

All games are tied in very closely to the refresh speed of the computer that they are running on. Every time the computer re-draws the screen once, the main game loop is performed (in theory). Obviously the more complex your game, the longer it takes to perform the main game

LISTING 2

```
' *** AMAL Animation Demo ↵
***
'
A$=" Anim
0,(1,4)(2,4)(3,4)(4,4)"
A$=A$+" ↵
(5,4)(6,4)(7,4)(8,4)"
'
Screen Open ↵
0,320,200,16,Lowres
Cls 0 : Flash Off : ↵
Double Buffer
'
Load "SOURCE:Ball.ABK"
Get Sprite Palette
Bob 1,0,100,1
Channel 1 To Bob 1
Amal 1,A$
Amal On
Do
Add COUNT,1,0 To 320
Bob 1,COUNT,100,
Wait Vbl
Loop
Wait Key
```

AMOS ANSWERS

If the going gets tough and your AMOS programs aren't working quite how they should, then who ya' gonna call? AMOS Answers of course! Jason Holborn is the man with the answers

BUYING DECISION

I'm thinking about buying AMOS but I have heard that Europress is currently putting the finishing touches to *AMOS Professional*, a more powerful version of AMOS that I think will suit my needs as a games programmer far more. Is it worth holding on to my money until this is released, or is it simply vapourware?

Peter Johnson
Sheffield

It is true that Europress is working on an enhanced version of AMOS which will be marketed under the name of *AMOS Professional*, but it certainly isn't in the final stages of development.

Although Europress hopes to have it out on the streets by the end of the year, I'd be surprised if we were to see anything of it before next spring. If you remember, the original AMOS was delayed by almost a year. After all, writing a programming language as complex as AMOS is no mean feat, so such delays are only to be expected.

My advice to you would be to take the plunge now and buy the current release of AMOS (1.34). Europress has already made it clear that it will offer existing users the chance to upgrade to *AMOS Professional* when it is finally released for a minimal cost. It seems almost certain that *AMOS Professional* will be downwardly compatible with the current release of AMOS, so all the code that you write now will be compatible with any future releases. Buy AMOS now and you'll be able to get to grips with *AMOS Professional* far more quickly.

DANCING SPRITES

I'm trying to write a demo which has sprites dancing in time to a Sound Tracker module played using the TRACK PLAY command. Problem is though, it doesn't work. Even when all channels are playing, all that the VUMETER function returns is a value of zero. Where am I going wrong?

Jason Booth
Edinburgh

Simple! The reason why the VUMETER function isn't returning anything is because you are using the Sound Tracker module routines included in version 1.34 of AMOS. Although these allow you to play modules without having to convert them, they are not compatible with the VUMETER function. You'll have to convert them to AMOS format and then use the standard AMOS 'MUSIC' command.

HELP!

If you've got a problem with AMOS, then AMOS Answers is here to help you. Send your problematic prose to: AMOS Answers, Amiga Shopper, Future Publishing Ltd, 30 Monmouth Street, BATH BA1 2BW

loop, but the principles are still the same.

The code on the previous page serves as a good demonstration of this technique in action. Although it won't run as it stands (you'll need to create a sprite bank which contains eight animated frames to run it), it demonstrates a couple of very important principles that you must understand to be able to animate sprites. As you can see, what it does

> *"Make sure your animations are running at the correct speed, so they don't become a flickering mess."*

is move an animated blitter object containing eight frames across the screen.

The action actually takes place within the loop defined by the 'Do...Loop' instruction. With a little help from the 'WaitVBL' command, the loop is performed once every vertical blanking period. Instead of just changing the frame each and every vertical blank, the loop delays the animation by counting the four before changing frame. This helps to slow the animation down. If it were to be run at full speed (animated at 50 frames per second), all you would see would be a flickering mess.

It's important to learn how to tie the speed of an animation in with all factors that will affect it. In the case of our bouncing ball, the animation is slowed down to approximately 12 fps (frames per second). To make your animation realistic, you should also take into consideration the fact that the object moves across the screen at about 4 pixels per frame. This becomes particularly true when you animate an object that is walking – if it moves too quickly for the width of each stride, the object will look as if it were skating across the screen rather than walking.

ANIMATION UNDER INTERRUPT

A second (and much easier) method of animating a sprite is to take advantage of AMOS' powerful animation language AMAL. Because AMAL runs under interrupt, it can automatically handle the task of changing frames without you having to worry about the current frame number of the delay between frames. As you can see from the example below, animating sprites under AMAL also produces a lot less code within the main game loop.

Whereas the traditional method covered above needed six lines of code, the AMAL version needs just two lines within the main loop. What's more, because there is no need for any form of decision making, these two lines will run much more quickly.

The AMAL command to animate a sprite is 'Anim' (note that the 'A' should always be upper case whilst the 'nim' extension is always lower case). The format of the command is 'Anim <Number of Cycles>,(<Frame Number>,<Delay>)...'. The number of cycles parameter dictates how many times the animation should be performed. If you specify a value of zero, the animation will loop continuously. The Frame Number parameter is simply a pointer to tell AMOS which image from the sprite bank is to be displayed. In our example in Listing 1, we use the images numbered from one to eight. Finally, Delay specified how long the current frame is to be displayed before switching to the next frame. This is expressed in terms of verticals blanks so a value of 50 would force the frame to be displayed for 1 second (there are 50 vertical blanks per second!).

Obviously AMAL programs run independently of the main program, so you will need several AMAL animation strings to control a single sprite.

Say for example you had a little space man running around the screen. While the joystick is pushed left or right, the animation string which cycles through the frames that will animate the spaceman will be run. But if he stops, you would then need another animation string to tell AMOS to display the sprite image of the spaceman standing still (something like 'Amal 0,(1,0)' would do the job. You could then have another AMAL animation string for him either firing a gun or kicking the bucket.

JARGON BUSTING • JARGON BUSTING

Sprite – A graphical shape, moved as a whole around the screen. The Workbench pointer is an example. Some sprites are manipulated by the Amiga's blitter, meaning that they can move very slowly and rapidly, without erasing the information beneath them as they travel across the screen.

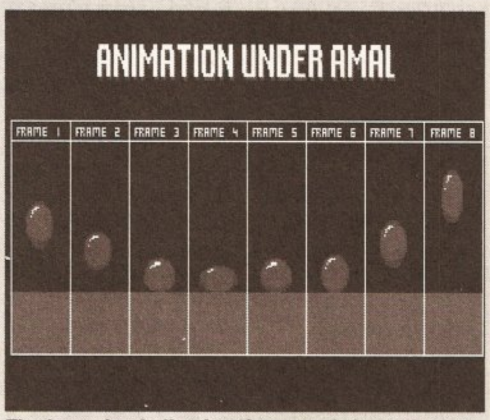
Blitter – Part of the Agnus chip which can move and alter areas of memory (specifically graphics memory) at very high speed, without intervention from the central processor. As a result, it is used extensively for animation.

Pixel – A picture element, one of the thousands of tiny rectangles which make up a computer screen. A pixel is the addressable area on the screen, so a screen's resolution is measured in terms of numbers of pixels displayable across by the number of pixels down.

DESIGNING ANIMATIONS

When designing any form of animated sprite for a game or demo, it makes a lot of sense to arrange the frames within your sprite bank in a logical order so that you don't have to know the location of each and every frame within the bank. All you will need to know is the location of the first frame and the number of frames which make up the animation. Although the AMOS Sprite Editor is a fairly powerful beast, I prefer to design all my sprites within *DPaint* simply because *DPaint* is a much faster and more flexible tool.

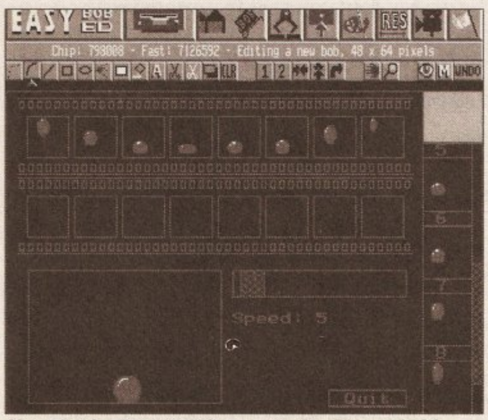
Before you start drawing away however, always start by deciding



The bouncing ball animation – each frame is the same height regardless of whether the ball is high in the air or on the ground, removing the need to mess around with such things as trajectories etc

upon the size of your sprite and then stick to it for all frames. Although AMOS doesn't restrict you to the size of individual frames, it makes things a lot easier if the sprite stays the same size. You can of course expand and contract the sprite as much as you like, as long as it doesn't grow any bigger than the maximum sprite size which you originally decided upon. I always start designing sprites within *DPaint* by drawing a grid like that shown below. By using a grid, you can ensure that the animation will flow smoothly between frames.

Once you've drawn your frames, save them off to disk as an IFF file and boot up the AMOS Sprite Designer. I use the Easy AMOS Sprite Editor simply because it is far easier and quicker to use, although the standard AMOS Editor is still a pretty well endowed beast. All that is now required is to grab the frames from the IFF file and place them into the sprite bank. If you're using the Easy AMOS Sprite Editor, you can test your animation by clicking on the Camera icon. This will bring up a display that looks life a reel of cine film. You then click on each frame in turn and the Easy AMOS Editor will automatically build up the animation for you allowing you to check that your animation actually works. Now that we have our sprite bank, we can get on with some coding...



If you're lucky enough to own the Easy AMOS Sprite Editor, you can test your animation before committing it to code

AMOS FOR BEGINNERS

Software scrolling

There's no doubting that the Amiga's hardware scrolling facilities which we covered last month are the fastest form of scrolling that AMOS has to offer, but it is rather restricted. Put simply, hardware scrolling can scroll whole screens only. If you need to scroll only a small screen area, you need to use software scrolling.

Unlike hardware scrolling which uses dedicated hardware to scroll the screen, software scrolling uses the Amiga's powerful blitter chip to shift large areas around. Many games programmers prefer software scrolling because it offers a far more flexible method of scrolling the screen. Software scrolling is a viable alternative to hardware scrolling in terms of speed when accessed through assembly language, but AMOS' software scrolling is not quite as a fast as it could be due to the overheads that AMOS imposes. It's still useful for scrolling small rectangular sections of the screen though.

DEMO 1

```
' *** Software Scroll ↵
Demo 1 ***
'
Load Iff ↵
"PICS:TESTIMAGE.IFF",0
Double Buffer
Bob Update Off
Autoback OFF
Def Scroll 1,10,10 To ↵
310,110,1,0
Do
Scroll 1
Screen Swap 0
Wait Vbl
Loop
```

DEMO 2

```
' *** Software Scroll ↵
Demo 2 ***
'
Load Iff ↵
"PICS:TESTIMAGE.IFF",0
Double Buffer
Bob Update Off
Autoback OFF
Do
For C=0 To 220
Screen Copy 0,C,0,C+100, ↵
100 To 0,110,150
Screen Copy 0,C,0,C+100, ↵
100 To 0,10,150
Screen Copy 0,C,0,C+100, ↵
100 To 0,210,150
Screen Swap 0
Wait Vbl
Next C
Loop
```

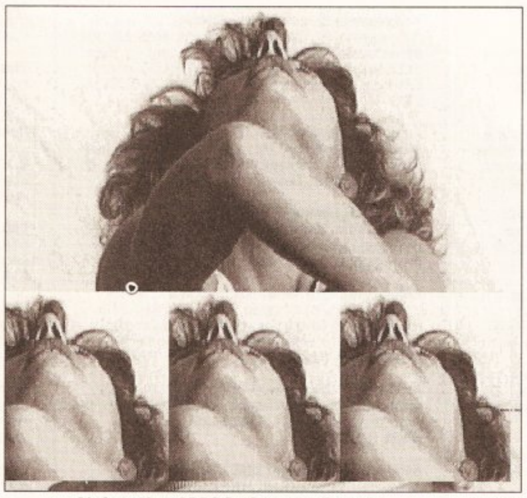
SCROLL COMMANDS

Software scrolling can be achieved using two different methods. By far the easiest method of software scrolling a section of a screen is to use the SCROLL command, as shown in Demo 1. However, before you can use this command, you have to define the section of the screen that is to be scrolled using the 'DEF SCROLL' command. AMOS enables you to define up to 16 different scroll 'zones', each of which must be defined using the DEF SCROLL command. The format is 'DEF SCROLL N,X1,Y1 TO X2,Y2,DX,DY where N is a whole number between 1 and 16 which defines the zone number. X1 and Y1 define the top left hand corner of the scroll zone and X2 and Y2 define the bottom right hand corner of the zone. DX and DY define the number of pixels the zone will be scrolled in a single operation. Positive numbers in DX and DY will scroll the zone to the right and down whilst negative values will cause the zone to be scrolled to the left and up. DX and DY don't actually tell AMOS where the scroll zone is scrolled to – they are 'delta' (relative) values that define the direction and speed of movement.

SOLO PARAMETER SCROLL

The DEF SCROLL command won't actually do a lot on its own. To make the screen scroll, you need to use the SCROLL command. The format of this command is very simple as it needs only one parameter to do its stuff – SCROLL N. N is the zone number that we defined within the DEF SCROLL command. To see this command in action, load up AMOS and enter the short program below.

The SCROLL command is really is nothing more than a glorified block copier that uses the Amiga's blitter to cut out a rectangular section of the screen and paste it down at a given position. The command keeps track of the current scroll position, so there's no need to use any sort of counter to fix the current scroll position. Another rather annoying limitation of the SCROLL command is the way that it leaves a trail as the rectangular zone is scrolled, so it's up to you to redraw the sections of the screen that the SCROLL command corrupts.



Using the AMOS 'Screen Copy' command, the top 100 pixels of the image are scrolled within three 100 by 100 pixel zones

SCREEN SCENE

Another more flexible method of scrolling the screen under software control is by using the AMOS 'SCREEN COPY' command. With a little bit of clever coding, it can be made to scroll the screen smoothly at quite an acceptable rate.

The format of the Screen Copy command is 'SCREEN COPY <Screen No>,X1,Y1,X2,Y2 To <Screen No>,X3,Y3,Mode. As you can see, the Screen Copy command can be used to transfer rectangular sections of one screen to another. However, before quoting the destination screen as the same index number as the source screen, a rectangular section cut from one screen can be scrolled on the same screen. This isn't usually particularly useful, but it's nice to be able to do so.

The <Screen Number> parameter in the first half of the command dictates which screen the rectangular area is to be cut and the second <Screen Number> parameters sets the destination. Say, for example, you were writing a game which required a small area of the screen to be continuously scrolled to the right. Using a separate screen that is hidden from the user (using the 'Screen Hide <Screen No>' command), you can have the entire scroll area drawn into a single screen as a series of rectangular strips that can be cut out and pasted into the visible screen using the Screen Copy command. Clever, eh?

As always, the X1,Y1 and X2,Y2 parameters define the size and location of the rectangle that the Screen Copy cuts out. Once again, AMOS uses the Amiga's blitter to perform this operation and it can therefore be pasted down anywhere within the destination screen by setting the X3,Y3 parameter so that it contains the top left hand co-ordinates (the origin) where the block is to be pasted. The Mode parameter isn't particularly applicable to software scrolling, but let's take a look at it nonetheless. What it does is to allow you to take advantage of the blitter's ability to manipulate an area of memory as it is transferred. The values that you pass are called 'Minterms' and they're in the same format as assembler programs use. The default value is %11000000 (expressed as an AMOS binary number) which just copies the block 'as is', but some interesting results can be gained by altering this binary number – try values of %00110000, %11100000 and %01010000 for example (you can find out more about Minterms in Addison-Wesley's *Hardware Reference Manual*).

BY WAY OF EXAMPLE

Anyway, enough of the techie jargon, let's take a look at a short program, shown in Demo 2, which demonstrates using the Screen Copy command for software scrolling. All it does is load in a low resolution IFF picture and copy a 100 by 100 section from the top half of the screen to three rectangular scroll zones lined up at the bottom of the screen. You'll have to replace the IFF filename with the filename of a picture file of your own, but the results will be the same.

You'll notice that the code includes a couple of extra commands which we haven't covered yet – AutoBack Off, Screen Swap 0 etc. Don't worry too much about these for the moment – they're there to ensure that the software scroll is synchronised with the screen's refresh. If these commands are omitted, the scroll will speed up but it will flicker. Operations of this type must be tied in with the screen refresh which is why I'll be covering synchronisation in great depth in the next issue. In the meantime, type in the listings and experiment. AS

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1520 Plotter Group (ICPUG) ☎ John Bentley 06286 65932.

16-32 Micro Programming AMOS, bimonthly fanzine, PD, (Fish->590) Membership 100FF/ £10 Contact F Moreau, 132 rue Jean Follain, 50000 Saint-Lo, France ☎ 31 52 20 02.

Amiga Addicts Newsletter and open nights For more info SAE to A Minnock, Clonkelly, Binn, Co Offaly, Ireland.

Amiga Artists Club 34 Roundhay Mount, Leeds LS8 4DW. For Amiga artists, musicians and coders. Pirates not welcome. Free. ☎ KAM on 0532 493942, 5-8pm.

Amiga Beginners' Club 110 Whitehill Park, Limavidy, Co. Londonderry BT49 0QG. Club to help newcomers. Bi-monthly club disk, and a small PD library. Membership £2 for a single disk, or £20 for every issue.

Amiga Computer Club PD Library, graphics, video, DTP, monthly mag SAE for details to R McDonald, 3 Islay Court, Irvine KA11 4JQ.

Amiga Helpline Service DTP, PD, Help/problem service. Free membership. Beginners welcome. Send stamp for more info to: G Keenan, 21 Skirsa Pl, Glasgow G23 5EE.

Amiga Musicians' Club Membership gets you a disk with 50 IFF samples a month for 12 months. Also sample service. Membership £30. Contact Gavin Wylie, Guthrie Street, Carnoustie, Angus.

Amiga Network International 2 monthly club disk, reviews, advice. For info contact Phil or Steve: 434 Denby Dale Rd East, Wakefield, W Yorks WF4 3AE

Amiga PD Oliver MacDonald at Tunley, Albaston, Gunnislake, Cornwall, PL18 9EL. Small but friendly PD Library, 99p a disk. Distribute your own written PD. Send £1.50 for catalogue disk.

Amiga PD Exchange at 27 Spa Rd, Preston, Lancashire, PR1 8SL. Chance to exchange PD, shareware, Fish and Tbag disks. £1 for disk and membership.

Amiga Users' Klub, Windsor House, 19 Castle St, Bodmin, Cornwall PL31 2DX. Meets every Friday from 6.30-9pm, to expand members' knowledge of Amiga and to help solve people's problems. Contact Jack Talling.

Amiga Users Group - FYLDE Advice on Amiga, technical support, discussions, workshops, tuition. £10 year, £6 for 6 months. Contact A Wilkinson, 25 Glen Eldon Rd, Lytham St Annes, Lancs ☎ 0253 724607.

Amiga Video Producers' Group Meets quarterly in Swindon. For info SAE to J Strutton, 8 Rochford Cl, Grange Park, Swindon, Wilts SN5 6AB ☎ 0793 870667.

Amiga Witham Users' Group 85 Highfields Rd, Witham, Essex CM8 1LW. Tips and Basic programs. K Anderson ☎ 0376 518271.

Amigaholics Club Free membership. Own disk magazine. For further information contact Kevin Bryan ☎ 071-580 2000 Ext 240 or 29 Wolfe Cres, Charlton, London SE7 8TS.

Amigamania Bi-monthly newsletter (tips, advice etc), quality PD, discount hardware, software and accessories, free advice. Discount card for High St shops. Annual membership fee £10. Contact S Green, 9 St Lukes Walk, Hawkinge, Kent CT18 7EF.

Amos Programmer Club Free membership, swap AMOS programs and PD, disk magazine and help for new users. Contact Gareth Downes-Powell, 6 Brassey Avenue, Broadstairs, Kent CT10 2DS.

AMOS Programmers' Exchange Free membership. Swapping software and ideas. Help available. J Lanng, 7 Majestic Rd, Hatch Warren, Basingstoke, Hants RG22 4XD.

Amos Programmers Group John Mullen at 62 Lonssdale St, Workington, Cumbria CA14 2YD. Programming hints, tips, tutorials plus several others. SAE for info. £10 membership for bi-monthly disk mag.

AMOS User Group Swap ideas, help on AMOS, swap PD and own creations. Andy ☎ 0323 26790 or write: 22 Ceylon Pl, Eastbourne, E Sussex BN21 3JF.

Avon Micro Computer Club Graphics and animation, business and the chance to speak to professional users. £3 per annum. Contact Roger: 95 Downend Rd, Horfield, Bristol ☎ 0272 513224.

Basic Programmers' Group 68 Queen Elizabeth Dr, Normanton, West Yorks WF6 1JF. Encourages the use of Basic, exchanges ideas and assists beginners to the language. Free newsletter Mark Blackall ☎ 0924 892106.

BR & CJ Computer Club B Robinson at 23 Fairway Rd, Shepshed, Loughborough, Leicestershire, LE12 9DS ☎ 0392 72889 or 03922 841296. Regular disk mag packed with tips, reviews of games and serious software, game cheats database, demos and utils, very large PD library. Membership £1.25.

Camberley User Group Lectures, competitions, advice, meetings, free membership. For more info contact F Wellbelove ☎ 0252 871 545.

Champion PD Club PD at 30p, newsletters, advice, help and more. Membership £10. Contact Steve Pickett, 31 Somerset Close, Catterick, N Yorkshire, DL9 3HE.

Chester-le-Street 16-Bit Computer Club Ground floor function suite, The Civic Centre, Newcastle Rd, Chester-le-Street. Club meets Mondays from 7.30-9.30pm. Exchange advice and swap tips. Contact Peter Mears ☎ 091-385 2939.

CDTV Users Club Swap views on software and hardware. Contact Julian Lavanini, 113 Fouracres Rd, Newall Green, Manchester M23 8ES.

Chic Computer Club Full details with an SAE to STAMP, Chic Computer Club, PO Box 121, Gerrards Cross, Bucks. Contact Steve Winter ☎ 0753 884473.

Club Amiga £10 a year for PD and a 24-hr helpline service (091-385 2627). For more info send SAE to Chris Longley, 5 Bowes Lea, Shiney Row, Houghton Le Spring, Tyne and Wear.

Club Futura Advice to programmers and beginners. Send SAE for info to G Holland, 16 Hermiston, Monkseaton, Whitley Bay, Tyne & Wear NE25 9AN.

Comp-U-Pal Australian group for users in the outback. Newsletter, helpline, PD library. Membership A$24. Comp-U-Pal, c/o MDA, PO Box 29, Knoxfield 3180, Victoria, Australia.

Computeque Steve Lalley at Inskip Meeting Hall, Ashurst, Skelmersdale, Lancs on 0695 31378 7.45pm - 10.30 pm every Tuesday. From beginner to advanced user. Half year membership £2.50 children, £3 adults.

Computer Club 16 Laton Rd, Hastings, East Sussex ☎ 0424 421480. A 16-bit club dedicated to being computer enthusiasts Membership costs £15 per year.

Deluxe Cheats Disk User Group Steven Frew at 96 Campden Green, Solihull, West Midlands, B92 8HG. Software advice. Updates every 2 months! £4 for disk £2 for updates.

Edinburgh Amiga Group Membership £5, includes free advice and PD. Contact Neil McRea, 37 Kingsknowe Road North, Edinburgh EH14 2DE with SAE.

Enfield Amiga Club Sean Clifton at 32A Hoe Lane, Enfield, Middlesex EN3 5SL on 081 804 2867. Meetings to be arranged. Get Amiga users together to form a club in this area, for tips/hints/help/swaps. No membership fee.

Exeter 16 Bit User Group Andrew Deeley or Phil Treby at 25A Gloucestershire Rd, Exwick, Exeter, EX4 2EF. Meeting every Wednesday 7pm. Programming £6 per annum.

Guru Masters PD, demos etc, contact the Sheriff, 111 Sherbourne Rd, Banbury, Wolverhampton, WV10 9EU ☎ 0902 782277.

Hampshire PD Club Mike Gallienne at 79, Carless Cl, Rownes, Gosport, Hants, PO13 9PW on 0705 585323. Public Domain Disks at 35p. Competitions once a month. SAE for more info. £10 a year.

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In Touch Amiga Penpals, contacts, PD, swaps £2.50/year. Contact P Allen, 0342 835530, PO Box 21, Lingfield, Surrey RH7 6YJ.

Independent Commodore Products Users' Group Biggin Hill Library, Church Rd, Biggin Hill, Kent. Meets most Thursdays from 7.45-9.45pm. Lectures and open nights. ☎ John Bickerstaff after 8.30pm 081-651 5436. Also national network of user groups. Contact individual groups for details on activities, cost, meeetings etc:
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Kent Youth Computer Group Computer fair visits, programming, video and DTP work, monthly newsletter. 30p entry/evening. Meetings Sundays 6.30 - 9pm at the D Bowen Youth centre, Kingsnorth Road, Ashford, Kent TN23 2LY. ☎ 0233 629804.

Maritime Amiga Club Maritime computing, interact with seafarers ashore on Amigas. Contact CDR K Osei, GN Ships Refit Office, 51 Rue de la Bretonniere, 50105 Cherbourg, France. ☎ 33 33225447.

Norwich Masked Heros SAE for info. Free membership. Contact Zorro, 278 Aylsham Rd, Norwich, Norfolk NR32RG ☎ 0603 409899.

Pennine Amiga Club 26 Spencer Street, Keighley, West Yorkshire BD21 2BU. Free membership, free advice and a newsletter. Contact Neville Armstrong ☎ 0535 609263.

Public Domain Exchange Demos, music, utilities, aimation Annual fee £8 Contact D McLeish, 26 Taunton Ave, Leigh, Lancs WN7 5PT.

Public Domain User Group Swaps PD, provides advice. SAE to 12 Oxford Rd, Guildford, Surrey.

Rye Computer Club Swap/meet at the Rye Community Centre. For info contact Oliver Campion, 71 The Mint, Rye, E Sussex TN31 7DP ☎ 0797 222876.

Serious Amiga Users Membership £5, £1 admission. Contact J Kucak for more: ☎ 0706 290387. Fortnightly meetings 7.30-11 at the High Crompton Conservative Club.

Shieldsoft PD at Wilmar Lodge, 13 Churton Rd, Rhyl, CLwyd.LL18 3NB. Write for more info. Basic programming help. CLI: Amos help. Disks from 50p to 80p. Membership free.

Sherlock PD Quarterly disk mag, help and advice for beginners. 50p/disk. A Doyle, 44 Milton Street, Warrenpoint, Co Down, N Ireland.

Shropshire Amiga Link Advice, monthly disk mag, PD £15/year fee. Contact N Cockayne, 2 Dodmoor Grange, Randlay, Telford, Shropshire TF3 2AW ☎ 0952 591376.

Slim Agnus 115 Brocks Drive, North Cheam, Sutton, Surrey SM3 9UW. Meet last Thursday of month. PD library, BBS, advice from Amiga experts. Contact Philip Worrel.

Software Exchange Service 13 Bournville Lane, Stirchley, Birmingham, West Midlands B30 2JY. Michael Pun ☎ 021-459 7576.

South 16 Bimonthly mag and disk, also PD library. SAE for more info. £10/year. Contact Bruce, PO Box 16, Southampton SO9 7AU.

South Wales Club Newsletter, PD library, free newsletter, programs, help and advice. For more info contact D Allen 53 West Avenue, Trecenydd, Caerphilly, CF8 2SF

Unique Styles Derek at 15 Montgomery Rd, Highbrooms, Tunbridge Wells, Kent on 0892 518319. By post only. For Amiga artists, programmers/musicians. Free membership.

Warpdrive (friends of Amiga) Amiga help-line, PD library, bi-monthly disk mag, free drinks, competitions and infosheet. £15 a year. Contact B Scales 110 Burton Ave, Balby, Doncaster DN4 8BB ☎ 0302 859715.

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Wrexham District Computer Club PD, library, equipment loan. 10p to join, 50p to get in. Memorial Hall, Wrexham every Thursday, 7-10pm. Contact Paul Evans, 3 Ffordd Elfed, Rhosnesi, Wrexham, Clwyd LL12 7LU.

Your Amiga Club Helplines, PD, social evenings, classes, club mag. Fee: £12, family £15. Contact P Higgins ☎ 0424 892269. The Old Chapel, Church Rd, Catsfield Battle, Sussex TN33 9DP.

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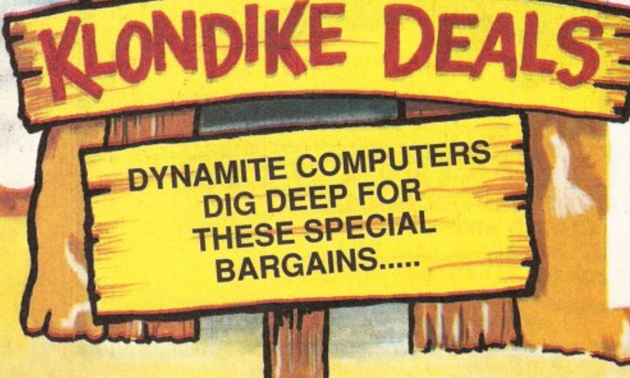
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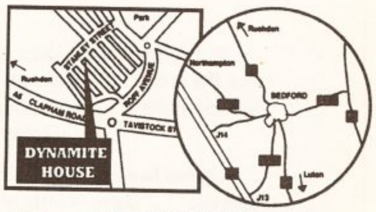
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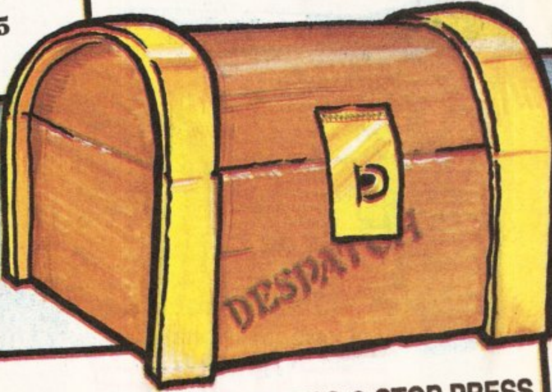
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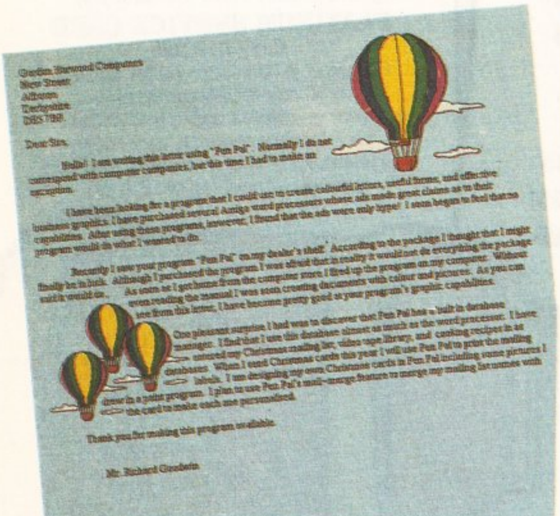
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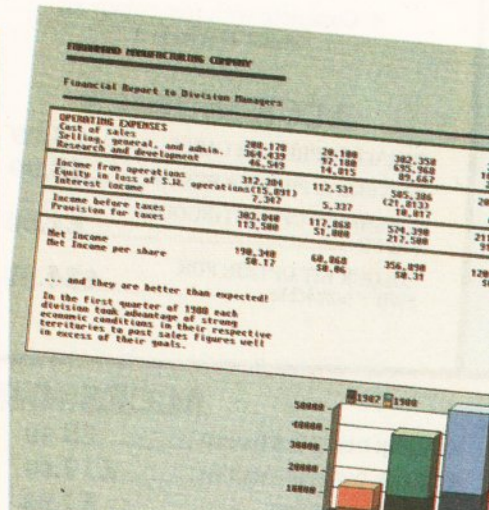
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Build your own *BBS*

This month our intrepid sysop Phil Harris looks at the shareware solutions to setting up a bulletin board

This month we take a look at some of the shareware BBS systems available. There are now numerous systems available, all packed with features. Each one could take a whole issue to examine in detail. To give you a taster of the sort of thing that is available I have described one system in detail, the *Soft-Span BBS*, and outlined three others – *Transamiga*, *BBS-Amiga* and *TagBBS*. After that we'll be taking a look at what you should consider if you're thinking of programming your own BBS board.

SOFT-SPAN BBS

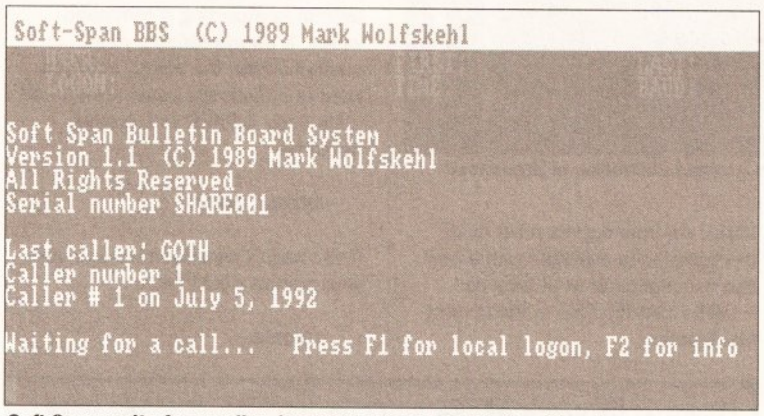
The first BBS we'll be looking at this month is the *Soft-Span BBS* from Mark Wolfskehl.

Soft-Span is a shareware system, costing $25 to register. Mark doesn't offer very much of an incentive to register though, you just get a discount off version two of the software if and when it appears. Despite the lack of incentive though, the software is very cheap, it will cost you around £15-£20 to register from the UK. For a BBS system this is excellent.

The first thing you'll notice about the system is a lack of documentation. Commercial systems come with hundreds of pages of documentation. The *Soft-Span* documentation covers just over five pages, most of that is a list of files and directories included in the package. It is these files which enable you to configure the system. Each file contains the details of what the contents mean, but more on that later.

The sparse documentation makes the obligatory plea for you to register the software, lists the files and directories you need and gives a very brief description of how the system works.

Soft-Span is split into two sections. The file directories and the message bases, both of which are pretty self explanatory. The user moves about the board using commands to join message bases and file directories, from which messages and files can be accessed.

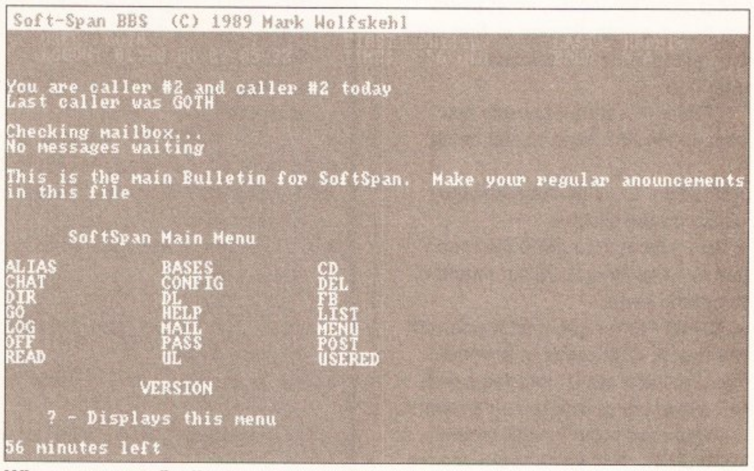


Soft-Span waits for a caller, it may be bland but it's functional

NO MENUS!

Soft-Span is unusual in that it takes a different approach to most packages.

Instead of the usual menu driven approach where each menu provides options relevant to the current area, files, messages or whatever, *Soft-Span* uses a command line system which is closer to CIX than your normal BBS.



When someone finally does call Soft-Span, this is what they see with a default system... The main menu

This layout makes the *Soft-Span* system simple to learn and fast to operate. What's more it reduces the amount of disk space which is required to run a board.

Once you have logged on to the system, and answered a few standard questions (address,

Figure 1: Soft-Span's access configuration

```
# New user access- for first time signed up
NEWUSER        ; Indicate the type of access
TIMELIMIT 60   ; In minutes
STARTCREDIT 50 ; Number of credits - applies to new users
EMAIL          ; Access to read and send electronic mail
FBACK          ; Access to leave feedback
UPLOAD         ; Access to upload files
# Here are the access bits to the various directories
DIR 1     ; Amiga Utilities - Bit number 1
DIR 2     ; Amiga Games     - Bit number 2
DIR 3     ; Amiga Graphics & Sound
DIR 4     ; Text files
DIR 5     ; IBM files

# Here are the access bits assigned for the message bases
BASE 1    ; Amiga Discussion - Bit number 1
BASE 2    ; IBM PC           - Bit number 2
BASE 3    ; General computer
BASE 4    ; Public Notices
BASE 5    ; Classified Ads
BASE 6    ; BBS Ads
BASE 7    ; Comments & Suggestions
BASE 8    ; Amiga Programming
BASE 9    ; C Programming
BASE 10   ; Story Board
BASE 11   ; Music Discussion
BASE 12   ; Movie Reviews
```

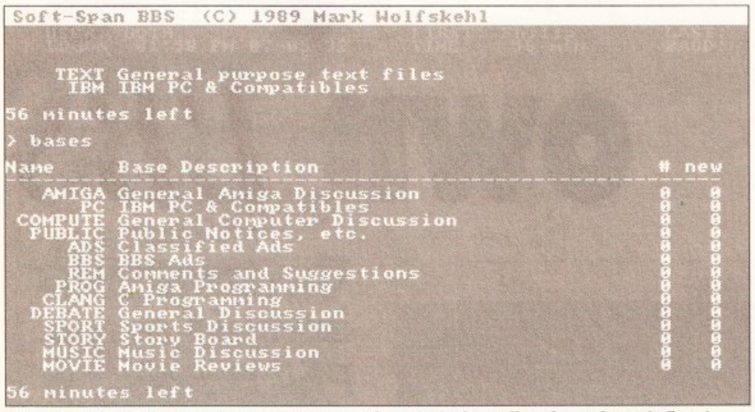
WHERE CAN I GET IT?

- Thanks to lewt@CIX *Soft-Span BBS* is available from the Amiga conference on CIX (081 390 1244). It is also available on Fish 374 and will probably be on other boards as well.
- *Transamiga BBS* was downloaded from End Zone BBS (0524 752245) which also features a couple of other BBS systems.
- *BBS-Amiga* is from Fish 30, and is also likely to be on your local board.
- *TagBBS* was downloaded from Chiba City (0501 44262), another BBS which features a lot of software, including several BBS systems, and a very friendly sysop.

telephone number etc) you are presented with a list of commands which the system understands. These commands can be entered at any point and are similar in some respects to AmigaDOS commands.

In addition, each command has a help file, accessed using HELP <command>. So HELP GO would give the help entry for the GO command.

• **MENU –** Another form of help, the



The default *Soft-Span* system comes with a whole collection of predefined message bases...

COMMAND OF THE LANGUAGE

The theory behind using a command language is that you will find it easier to remember all the commands in the system, making it much easier to use. Whether this is a good idea or not is open to debate, most users will find it a little strange at first until they get used to the unusual interface.

There is a total of twenty-two commands, the most useful being:

• **BASES –** Lists all the message bases on the system.

• **CD –** Moves to a given file area, just like the AmigaDOS command of the same name.

• **CHAT –** Enter into chat mode with the sysop. Chat mode is a simple "type to each other" interface, with the sysop being able to edit a user's configuration while in chat mode.

• **CONFIG –** This gives users access to their configuration information. It allows them to alter their screen length, the type of transfer protocol they wish to use, the number of lines on screen etc.

• **DIR –** This lists all the available file areas (directories) on the board. Again, this is just like the AmigaDOS command.

• **UL & DL –** These two commands allow the user to upload and download to the current file directory.

• **GO –** Moves to the given message base, GO AMIGA would move you to the Amiga message base. The GO can be omitted so typing AMIGA would move you to the Amiga message base as well.

• **HELP –** A very useful command, this moves the user to a help menu which provides help on the various aspects of the system. Reading and posting messages, electronic mail, file transfers and the editor all have their own help sections.

MENU command gives a list of all the commands available with a one line description of what they do.

• **LIST –** List the files in the current file directory.

• **MAIL –** Moves into the electronic mail area (see below).

• **POST & READ –** These two commands allow the user to post and read messages in the current message base.

• **OFF –** The OFF command is the one strange item. It is the command used to exit the system. A more sensible choice would have been LOGOFF. LOG is used to display the current user log though.

NEED PROMPTING?

As you move about the system, the prompt you are given when the system is expecting a command varies. It always reflects your position within the board, so if you were in a message base, AMIGA and a file area, GAMES your prompt would be:

```
AMIGA!GAMES>
```

If you hadn't joined a message base, your prompt would be:

```
!GAMES>
```

Figure 2: Example BASES entry for the first message base

```
# This file contains information about all the message bases
# There are 32 bits for access to the message bases ↵
  numbered 1-32
# Two types of access - ACCESS indicates read and post ↵
  access
#       - READONLY access is for, guess what, reading only
# if ACCESS is zero, everyone gets full access to the base
# if READONLY is zero, everyone gets at least read access ↵
  to the base
# ACCESS and READONLY are access bits (1-32) assigned to ↵
  that base

# NOTE: The Email and feedback descriptors are at the end ↵
  of the file
#  be sure you take a look at them

# Each message base gets an entry as follows

# BASE defines a message base called "Amiga"
BASE Amiga
# DESC is a short description of the base
DESC General Amiga Discussion
ACCESS 1            ; This is the read/write access bit assigned
#                   ;to this base
READONLY 30         ; This is the read only access bit assigned
#                   ;to this base
# This is the path where the message base file will be ↵
  located
PATH soft_span:bases/
MAXLINES 60         ;This is the maximum length (in lines) of
#                   ;any message on this base
HIGHMSG 100         ;This is the maximum number of messages
#                   ;this base will hold

# This base name is REQUIRED! Don't change it!7
BASE Email
DESC Mail Management
ACCESS 32           ;Access bit 32- only for the sysop
READONLY 32
PATH soft_span:bases/
MAXLINES 40
HIGHMSG 100
```

If you'd only joined the AMIGA message base the prompt would be:

```
AMIGA>
```

Soft-Span also features a separate e-Mail system. The MAIL command takes you to the "Electronic Mailroom". From here you can send and read e-Mail or list the users registered on the system. This last option is useful for finding out the name of the person to whom you wish to send mail.

CONFIGURING THE SYSTEM

There are five main areas in which the sysop can configure the system. Each area takes the form of a text file. These text files are not described in the documentation but comments within the files themselves explain what they do.

You would be wise to print out each of the text files if possible; that way you can look them over and learn which aspects of the system can be modified, and how to do it.

To edit the text files you'll need a text editor of some sort, Micro-EMACS from the Workbench is suggested by the author but the AmigaDOS ED or Notepad would do.

ACCESS CONFIGURATION

Figure 1 on page 93 shows the access configuration file that comes with the system.

This file is used to define which areas users will have access to for three levels of access: NEW USER, VALIDATED and SYSOP. Access control is limited; control is only given over the amount of time on-line, upload capability and access to message bases and file directories for downloads. New users are also allocated a maximum number of files they can download.

THE MESSAGE BASES

There can be up to 32 message bases in a *Soft-Span* system, and each one requires an entry in the BASES text file.

Each entry in the configuration files details the name of the message base, a short description, the type of access to the base, either read only or read/write.

These entries also define the maximum number of lines within each message, and the maximum number of messages allowable in that particular message base.

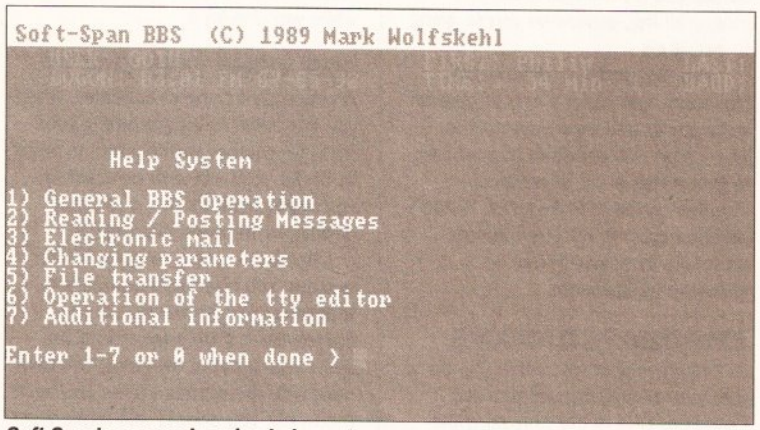
Figure 2 shows the example BASES entry for the first message base in the example code.

DOWNLOAD CONFIGURATION

The DLOADS text file details the configuration for file directories. In a similar manner to the message base

configuration for this file, it gives the directory name, description and the path for the directory where the files will be stored.

Finally the access number for this area is given. The end of the file details the upload directory where



***Soft-Span*'s comprehensive help system**

new files are placed. The system has an interesting method of allowing the sysop to determine which machine an upload is for. When a file is uploaded, the machine it is aimed at is placed in the comment field for that file. When the sysop comes to add the file to the directories he can check the comment field to find out which directory he should put it in.

Figure 3 shows a couple of example entries from the DLOADS file supplied with the system.

This small file (see Figure 4 on page 96 for an example), the general configuration file, contains three items – the length the system is idle before timing out and hanging up on an inactive caller, the editors' size buffer and the number of credits given to a user who uploads a file.

MODEM CONFIGURATION

This final configuration file controls the set-up and initialisation of the modem used by the system. Lines allow you to specify initialisation strings, the string required to hang up the modem, the text returned when the modem answers a call, the number of rings before the modem is answered etc.

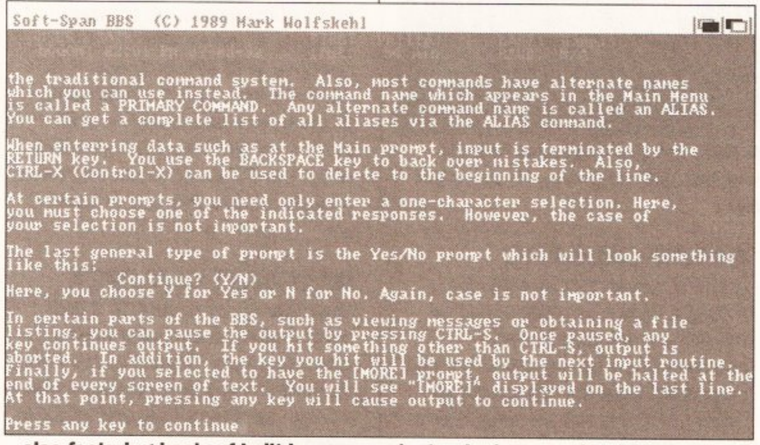
All of the text files used by the system are available for the sysop to customise, including the help system. Bulletins are available for log-on messages, welcome messages and the main menu text and description.

CONCLUSION

From the users' point of view this is an unusual board. The command line interface is a bit strange but once you have learnt how to move around the board, a process which should only take a few minutes, it is fast. Users who are used to the Amiga CLI will feel at home with the command line style interface, while users in favour of the mouse may prefer to stick with the easy-to-use menus.

Apart from the unusual interface it offers very little new. There are no statistics available, no ways of calling external programs.

Configuration is simple, no



...also featuring loads of built-in commands, too bad you can't add any more

configuration programs to learn (other than a text editor) and a moderately configurable system. *Soft-Span* systems will always feel like *Soft-Span* systems though, the unusual interface ensures that.

At $25 *Soft-Span* is a cheap system, and more importantly it would be perfectly feasible to run the system from floppies because the software itself takes up so little space. As such, it is ideal for people on a low budget wishing to set up their own board.

TRANSAMIGA BBS

The *Transamiga BBS* system is a relatively new BBS system written partly using HiSoft Basic which aims to provide a more standard system than *Soft-Span*. It is also more powerful, meaning that it takes significantly longer to set up: it's not a plug-in and go system.

Unfortunately *Transamiga* arrived too late to be able to provide a thorough review this issue but I'll be covering it in full in a future issue. In the meantime there are a number of features which make it worth a look.

Figure 3: Example entries from Soft-Span's DLOADS file

```
# Definitions of the download directories
# DIR determines the directory's name
# PATH is the full path to the directory's location
# ACCESS determines the access bit assigned to the directory
# Access bits are in the range of 1 to 16

# NOTE: The end of this file describes the upload directory.
#       Be sure to take a look at it

# This is the directory name
DIR UTIL
# This is a brief description
DESC Amiga useful files/utilities
# This is the path to the directory
PATH soft_span:dl/AmiUtil
ACCESS 1         ; Assign access bit 1

# The upload directory
# Must be called UPLOAD

DIR UPLOAD
DESC Upload Directory
PATH soft_span:UL
ACCESS 16        ; Access bit 16- only for the sysop!

# NOTE: This type of access lets you examine the upload
# directory and download from it like any other directory.
# You will not want to give the general user this type of
# access
```

The file transfer protocols used by the system are provided using external libraries. This means that you can use any protocols you have libraries for. Currently libraries are available for *XModem*, *ZModem* and *Kermit* transfer among others.

HIGH SECURITY

Transamiga has plenty of security measures built in, up to 256 security codes (not many compared to PC based packages but probably more than enough), daily time limits and upload/download control. Commands which a user is not entitled to use are invisible to him.

USER FRIENDLY

The program supports hot keys, ANSI menus are supported allowing you to have full colour menus and even animations if you wish. The software has been written with Fidonet in mind and has been designed to make it easier to run as a Fidonet board.

Finally, it's reasonably priced. It's not as cheap as *Soft-Span*, it's $40 for UK users but it's a *very* powerful system, rivalling systems costing over double that. Stay tuned for more details but if you're looking for a system and are sure you want to put the effort in, take a look at *Transamiga*.

BBS-AMIGA 1.1

This was the first Amiga BBS available on the Fish disks, and it shows. It was written using AmigaBasic which does have the advantage that you can fix bugs or modify it as you wish. It is also designed specifically for a two drive system, hard drives being a real rarity when this was written.

There is the disadvantage that the software is old, and lacks the majority of the features you'd get in modern software. It could be used as the basis for a "real" system of your own, but this system is really only for the desperate.

TAGBBS

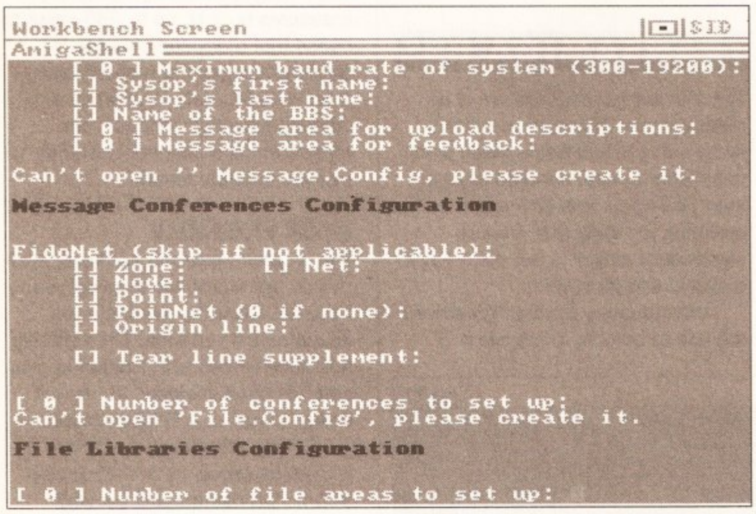
Again, this was originally from a very early Fish disk (66 in fact) but it has been developed as time progressed. Despite not appearing on any more Fish disks it is now up to version 5.

Unfortunately the version I downloaded would not run correctly and there was no documentation to speak of. Whether this is a fault with the particular archive I had or a general problem with the software remains to be seen.

TagBBS is controlled entirely from a large (22Kb) control file which sets out all the download and message structures and security ratings to be used by the system. Support is also provided for "doors",

external software called from within the BBS to provide facilities not built into the software, games being the most obvious application.

From what I've seen *TagBBS* seems to be very good, and I will be trying to get hold of a working system and provide some more information next month. In the meantime if you do want to try the program out, it's worth checking the archive before you download it to see if there is documentation.



The configuration program for *Transamiga BBS*, not the most user friendly program in the world, but the software itself has got the power, if you've got the patience. # Standard accesses settings

DO IT YOURSELF BULLETIN BOARDS

Although the easiest way to set up a BBS is to buy a ready-made BBS system, a more fulfilling way of creating your own board is to program one yourself.

Writing your own BBS is not a task to be taken lightly. A BBS is a complicated beast and there are a great many aspects which must be examined and problems which must be solved before you can even start writing the software. Even then, there'll be some time before you have a system that you can use with confidence.

WHAT LANGUAGE?

The first decision will be what language to use. This is really a personal choice but the two main possibilities are a version of Basic and C.

BASICALLY BASIC

Basic will be the obvious choice for most people. There are three options under the Basic heading, either AmigaBasic, HiSoft Basic or AMOS (which is Basic in all but name).

TORTOISE BASIC

AmigaBasic is pretty slow, the editor is terrible and a large program like a BBS system will be difficult to handle in such a terrible implementation.

HARE BASIC

HiSoft Basic is much better, it's compiled, which means it's quick and it has a reasonable editor. A new version should be on its way which ought to make things even better.

GRAPHICAL BASIC

AMOS is not all that suitable for writing a BBS. It is really aimed at the games/graphics based programming area and BBSs are text-only, apart from the odd splash of colour. AMOS is not the language for text applications.

C WHAT YOU CAN C

C is a much more complicated language than Basic, but it is also far more powerful. It's fast, reasonably compact and allows you access to the power of your Amiga much more readily than Basic ever can.

But all this power takes much longer to harness and a BBS is a complicated program, not something a C beginner should try really.

If you do have some experience of C though, there are no complicated graphic routines required for an Amiga BBS, although the options are there if you wish. A BBS involves a lot of text handling so if you've got plenty of spare time, and don't mind losing a bit of hair, building a BBS can be a fun project.

FILE TRANSFERS

Once you've decided on the language in which you're going to program, you need to explore some of the problems that you're going to encounter. It's best to do this now before you dive in and start programming, otherwise you're going to get stuck.

The first problem area is file transfers. You need a way of getting software to and from your callers. The Amiga is blessed in this respect in that it has a set of protocol libraries called XPR libraries. These libraries provide various transfer protocols including (most importantly) *ZModem*.

ZMODEM PROTOCOLS

It doesn't matter what else you do with your board, it must provide *ZModem*. This is the only sensible protocol nowadays, all software supports it and so should all BBS systems. With XPR protocols it is relatively easy to call functions to provide download facilities, and they're usually free. Think yourself lucky, the PC scene is not advanced enough to have this sort of facility yet.

DATABASE DEALINGS

The other major section of a BBS covers how you are going to store your messages. Basically, you want to create a message database that you can access quickly and easily to avoid delays.

Figure 4: An example of a general configuration file

```
# File for general BBS settings

# Length of idle time for a timeout to occur (in seconds)
TIMEOUT 120

# Size (in bytes) of the editor's buffer
EDBUF 4096

# File credit ratio - currently 3x size of the file uploaded
RATIO 3
```

RANDOM ACCESS

In Basic (whichever one you decide to use), this is most easily achieved by using the built-in random access record handling. This has the disadvantage that it can waste a lot of space but if you pick a sensible limit on the maximum size of the messages the effect can be reduced.

Alternatively you could use your own record handling system, one that doesn't waste as much space.

THE C SOLUTION

If you're working in C you'll have to write your own database handling code. This isn't the place to go into detail about the techniques, but suffice to say it isn't easy and you should be prepared to spend quite a while working on it.

FOR YOUR EYES ONLY?

An important thing to consider, when you get down to programming your BBS, is whether your system is going to be for your use only or whether you might want to give it to other people, or perhaps even sell it.

If you are going to pass on the system, you need to make certain that other people will be able to customise it if they want to. If the system is for your own use, you can hard wire the menus etc as *you* want them, but you should still make sure that you can change them if you want to at a later stage.

Of the two options, it is best to keep things to yourself when you're just starting out. Once you have a stable system you can use it as a base to create a configurable system.

SECURITY MEASURES

Finally, it's worth spending some time considering the security aspects of the board. Almost complete strangers are going to be dialling in to your board and if you're not careful you could end up with them having access to your machine.

Think about how you are going to stop them, try and put yourself in the users' position. What mistakes are they likely to make? More importantly, if you do get an unsociable caller, how are you going to prevent him from becoming a menace?

PLAN, PLAN, PLAN

If after all that, you still want to write your own BBS, it's time to start planning. Lay out the whole board on paper, think about how you will actually write it. Try to think of original things to add, but don't overdo it, keep it relatively simple for now. There will be plenty of time to embellish your board later.

Once you've planned everything, get coding. But be prepared to run into problems. Don't give up though, persevere – you'll find that writing your own BBS can be enjoyable and rewarding. AS

NEXT MONTH • NEXT MONTH • NEXT MONTH

Thanks go to lewt@CIX and mlednor@CIX for their assistance in tracking down some of the software for me to review this month.

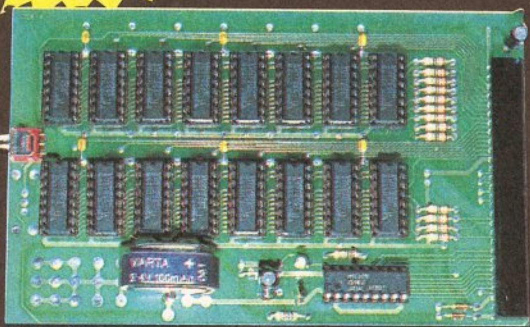
Next month I'll be continuing our look at BBS software, in particular commercial BBS systems. Until then, happy modeming.

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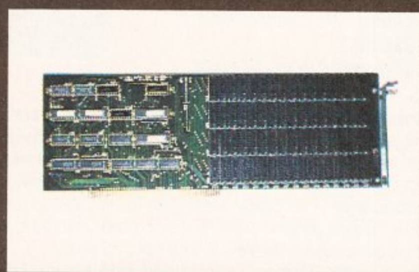


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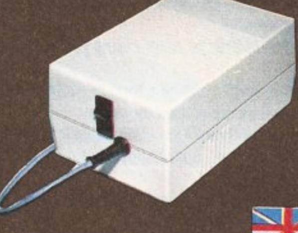


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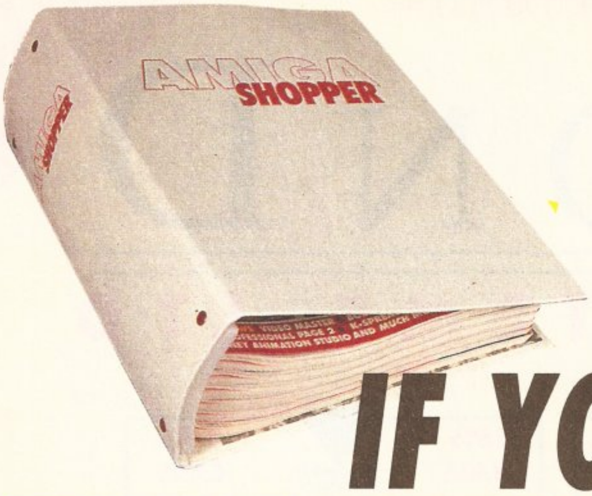
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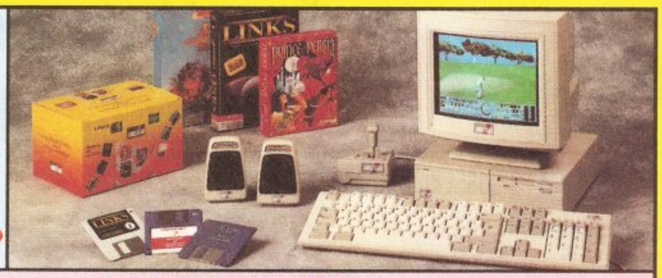
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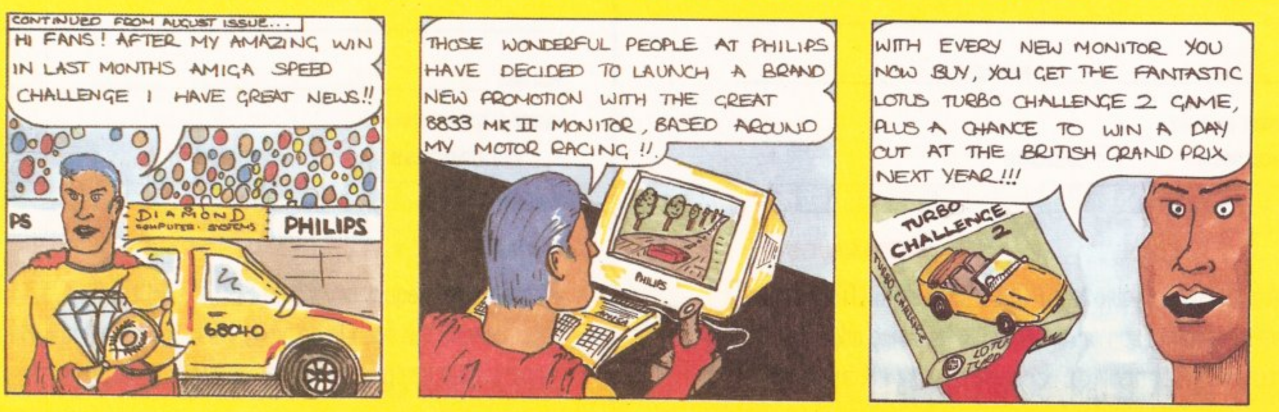
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Build a brain

You've had the theory and the source code for a neural net, now you get the discussion of how well it works and why. Philip Gladwin contemplates the past, present and future of neural networking

It's clear to anyone who has actually played with the net that I have described over the last few months that it has what we could politely call an erratic performance. The best that we can say is that it tends to produce the taught pattern that is closest in hamming terms to the test pattern you entered. Why is this?

NEVER TRUST THE BIG BOYS

Well, that isn't strictly what I mean. "Never take the Big Boys completely on trust" would be more like it. The layout of this net is based on a description in Professor Igor Aleksander's excellent book *An Introduction to Neural Computing* (Chapman and Hall, £15.99). The thing is that it doesn't quite work as well as he claims it will. He reckons that a net built to this spec will always find the closest (hamming-style) pattern. The net has a good go, but sometimes, as you will probably have noticed, it makes mistakes.

> ***"The split in the neural levels mirrors the kind of split we find in the human body."***

For example, if the net is taught the letters 'T' and 'H', and then tested on the pattern (1,1,1,0,0,0,1,1,1) – which is a hamming distance of 3 from a 'T' and 5 from an 'H' – then it should always settle on a 'T'. It doesn't. It is perfectly possible to get either a 'T', an 'H', or for it to settle into an endless loop.

THE ENDLESS LOOP

The endless loop is easiest to explain. It usually occurs with test patterns that are equi-distant from the two learned patterns, and it can be understood as the net saying "I don't know!" – which is about the most intelligent response that anyone could make in the circumstances.

However, the fact that you can get it in this case, combined with the other problem that quite often you will get an 'H' where you should get a 'T', indicates a weakness in the mechanism of the net.

If you look at Figure 1 you can see what I mean. This diagram traces the net through various states, given the starting pattern I mentioned above. It's all to do with the behaviour of the undefined nodes. Remember that they can either output a 1 or a 0 with equal probability. If you follow Path A you can see how the net can get to an 'H', Path B shows the route to a 'T'. You'll have to take it on trust that you can get into a loop from the same position. (Reasons of space, etc. Perhaps if you were extra keen you could work it out for yourself...?)

We would like the net to always choose the path that will reduce the shortest hamming distance, but this purely statistical behaviour means that this isn't always going to happen. What's needed is some sort of explicit controlling principle to prevent the net choosing the wrong path.

HOPFIELD AND BOLTZMANN

We're not the first to observe this problem, and John Hopfield published a solution back in 1982. He, rather cleverly, imagined that the net has always an energy level associated with it. When the net is given a problem to solve, its energy is said to be high, and when it settles into a solution its energy level is said to be lower than that. So if we get the net to always choose the path that minimises the energy contained in the net, then we will be sure to hit the solution as quickly as possible.

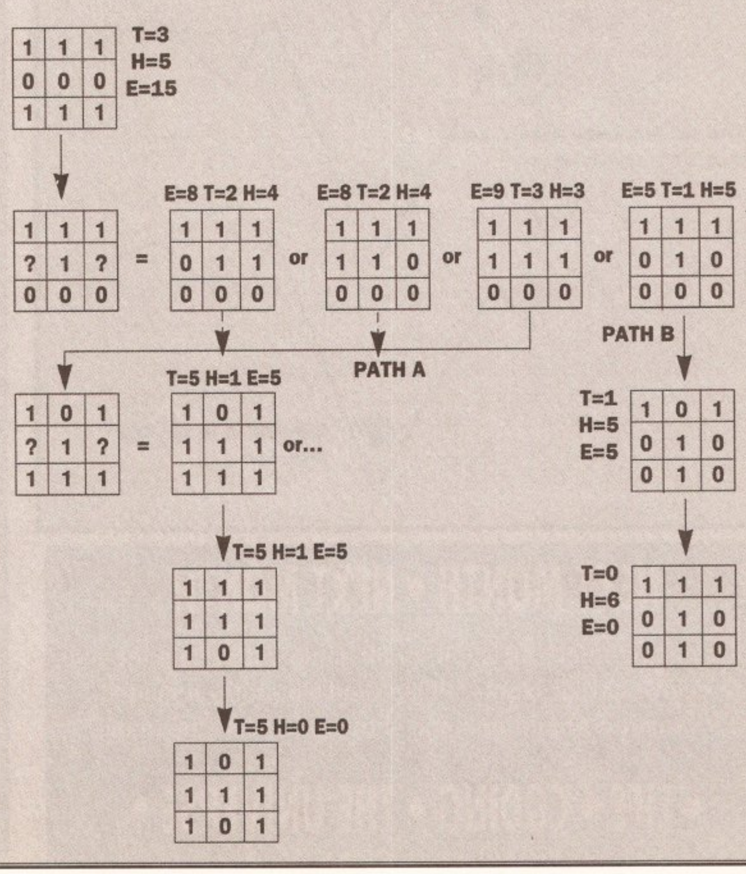
One crude way of doing this in our case would be to find the hamming distances from the test pattern to each of the taught patterns, multiply the two figures by each other, and let that be equal to the energy level of our net. This would mean that in Figure 1 the net starts off with an energy of 15, and aims to settle into the energy state of 0. If we give the net a controller which always chooses the path minimising the energy level, then the net will choose Path B and settle into the correct conclusion.

> ***"Problems in neural computing often have no theoretical objection."***

COMPLEX NETS

Of course, this isn't the end of the matter. I don't think it can happen with our net, but if the same principle is applied to a more complicated net

Figure 1: Tracing the neural net through its stages – it's as simple as following the arrows (honest!)



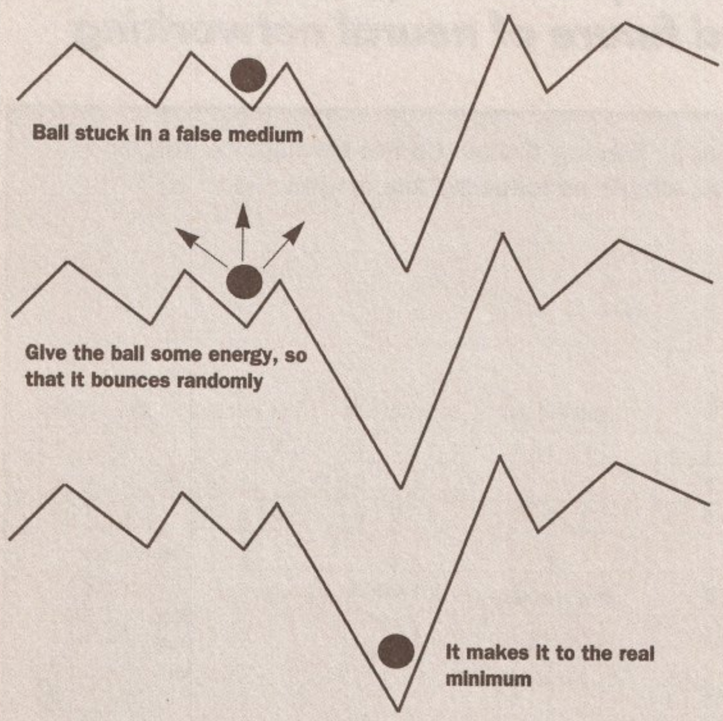
then there must be a chance that the net could get into a position where it has only a few options, and none of them reduce the energy in the net. What should happen then?

This position, called hitting a local bottom, or minimum, occurs rather frequently in more complicated nets, and it took a paper from Geoffrey Hinton in 1986 to offer a solution. Hinton and the people working with him called their new method the Boltzmann Machine after the famous physicist Ludwig Boltzmann, referring to his description of the random movement of particles in a heated gas. The more heat energy particles have, the more they move around. If you apply this idea to the net, and, through a rather large leap of imagination, imagine the process of finding a solution state to be similar to a particle rolling around an uneven plain, with troughs and valleys in the plain indicating high or low energy states, then the net getting stuck in a local minimum is similar to the particle coming to rest half way to the bottom in Figure 2. A way out of this local minimum would be to 'heat' the particle, or give it some energy of its own, so that it has the ability to leap out of local minima. If it can do this then the chances are that over a period of time it will make its own way right down to the bottom of the energy plain.

"At the moment your average neural net is great at solving problems of classification."

But that's another story, and this is the end of the series. All in all, our net is only a toy, but on the whole it still works rather well. If you're interested in neural nets, and want to see how the really big stuff works, then I can recommend Aleksander's book as being readable and pitched right for the beginner. (It does need a little maths, though, so try to have a look before you buy it). AS

Figure 2: High and low energy as it flows through the troughs and the valleys



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Programming grief? Sit back, drink some coffee and let your code evolve until it works. Philip Gladwin starts a guided tour of Genetic Algorithms and shows you how it's done.

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NEW GIZMO – OLD HYPE?

If you remember all the fuss about Expert Systems and 4GLs before them, you probably want to dismiss all the fantastic claims about neural nets as yet more marketing hysteria put about by companies with heavy investment to recoup, backed by journalists scrabbling around for the next big sensation. But I wouldn't agree with you. Not completely. Sure, neural nets aren't going to take over the world, but they aren't going to go away either. What will happen is that, like 4GLs and Expert Systems, they're going to reach their fullest potential as integral parts of larger, conventional systems.

For example, imagine a three layer architecture. Begin with a sensory neural layer handling raw input from video cameras, microphones, radar systems etc, passing what it gets on to a cognitive neural layer, which 'comprehends' the input, formulating the instructions or extracting user commands for the third, traditional computer level which is actually running the Management Information System, Rapid Response Battlefield Command System or whatever.

THE HUMAN ANALOGY

This split in the neural levels crudely mirrors the kind of split we have in the human body: we have input devices, like our skin, our eyes and our ears, and we have cognitive apparatus: our brains. Of course, it isn't as clear cut as this in our case, because there isn't the clear division of labour. Our eyes, because of the different types of cones and rods in the retina, perform some analysis before the input is sent along to the brain, so that the signals received there have already had some kind of classification work done to them. Our proposed sensory level should also carry out a similar pre-processing, or primitive feature extraction (eg, detecting the edges forming the outlines of a particular mechanical component in a variety of lighting conditions). Having built a first layer to do this, it makes sense to make it as good at doing this as possible. IT therefore will be a rather specialised and inflexible thing. The cognitive level will then, like our brains, have the job of adaptation, of learning, of generally making sense of it all and building shapes or concepts, from the primitives it is fed.

SCI-FI OR FACT

It's easy to let your imagination run away with you at this point, and assume that because we can talk easily about these things and just gloss over the massive problems involved in building such a cognitive level, then they're as good as built. This was the downfall of AI in the 80s, and we should be wary of repeating the mistake.

While it's easy to have lots of science-fictional ideas, it wouldn't do to lose sight of the fact that neural computing is still very much in its infancy, and that although there is a strong sense of potential and despite there being some very good working systems around, we are still very much at the beginning of it all.

At the moment your average neural net is great at solving problems of classification, but has trouble when it comes to anything involving sequential processes, such as putting words together to form sentences or recognising a sequence of light patterns that constitute a moving image.

FUTURE PERFECT?

Now it was true for a long time that this was a basic property of the types of neural nets people were using and, therefore, insurmountable.

Then someone realised that you could provide a net with its own macroscopic feedback loops. A net with an architecture like this could take output from one particular instance of recognition and feed it into a slightly different classification problem, rolling forward in the beginnings of sequential processing.

Problems in neural computing are often like this, with no theoretical objection. The thing is that this sort of system doesn't just fall into place off the shelf. However, whatever the difficulties, one thing's for sure, there is a lot of good stuff to come.

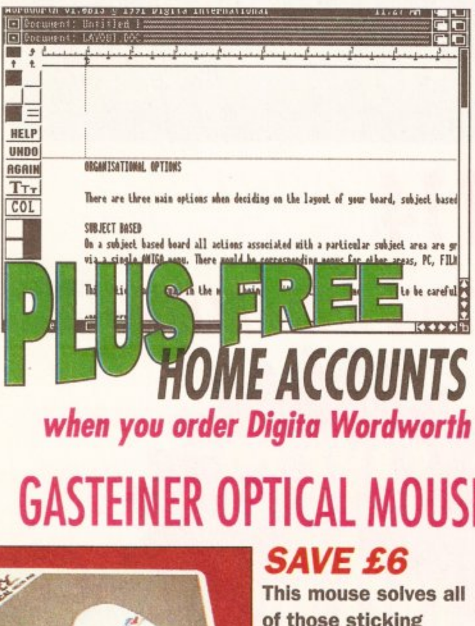
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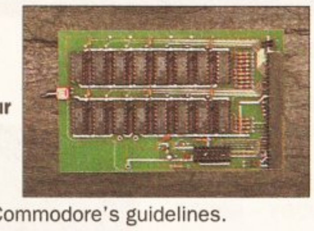
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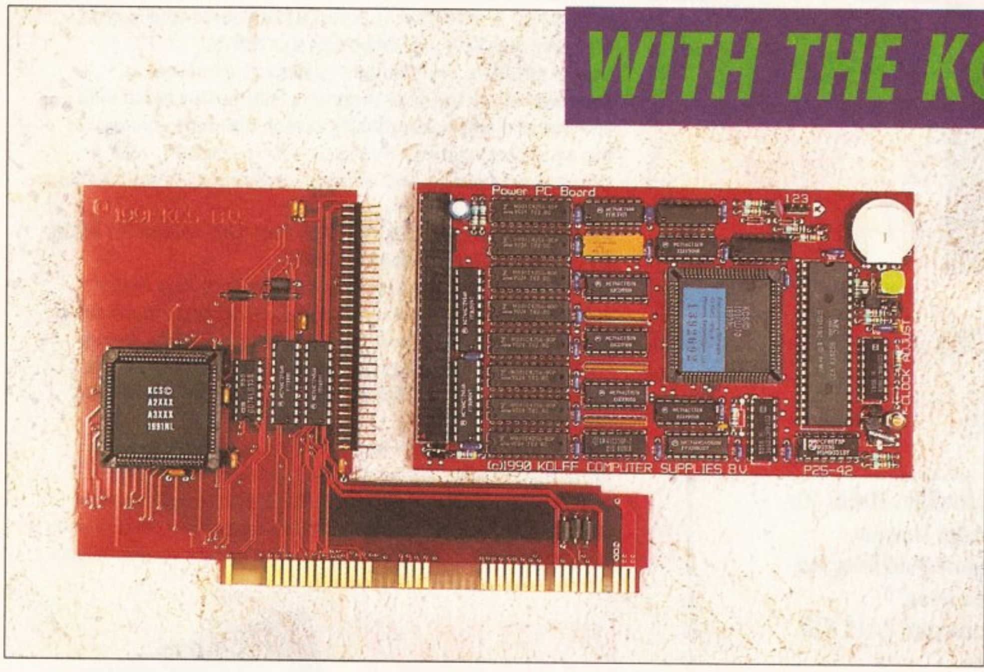
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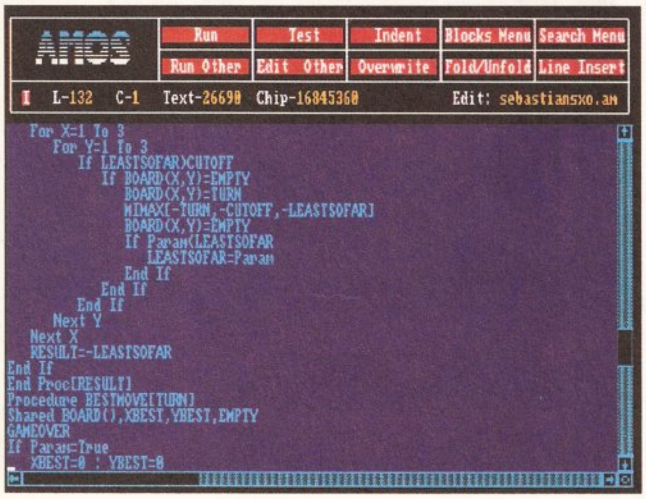
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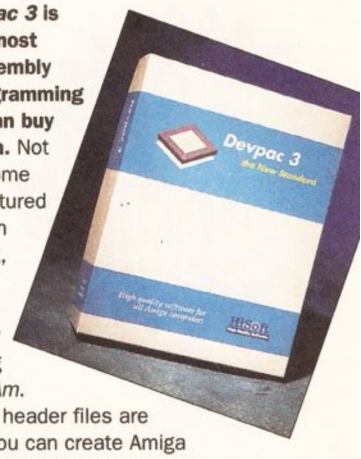
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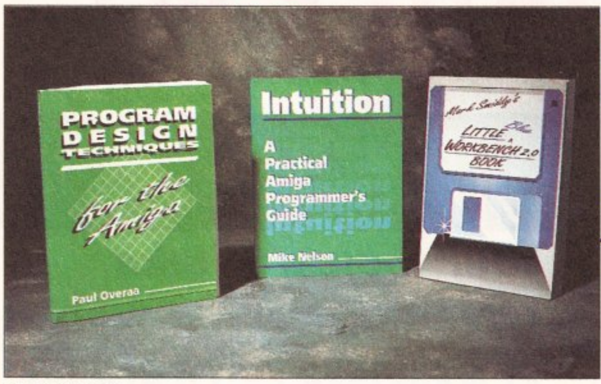
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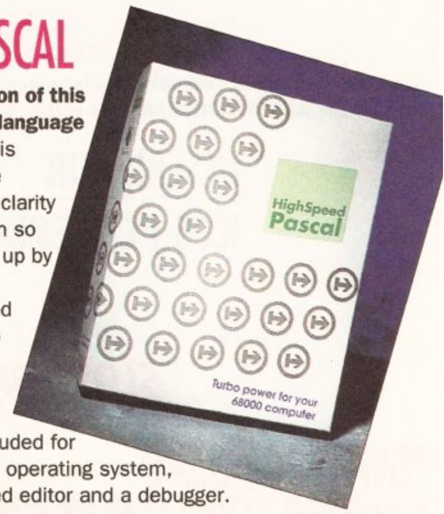
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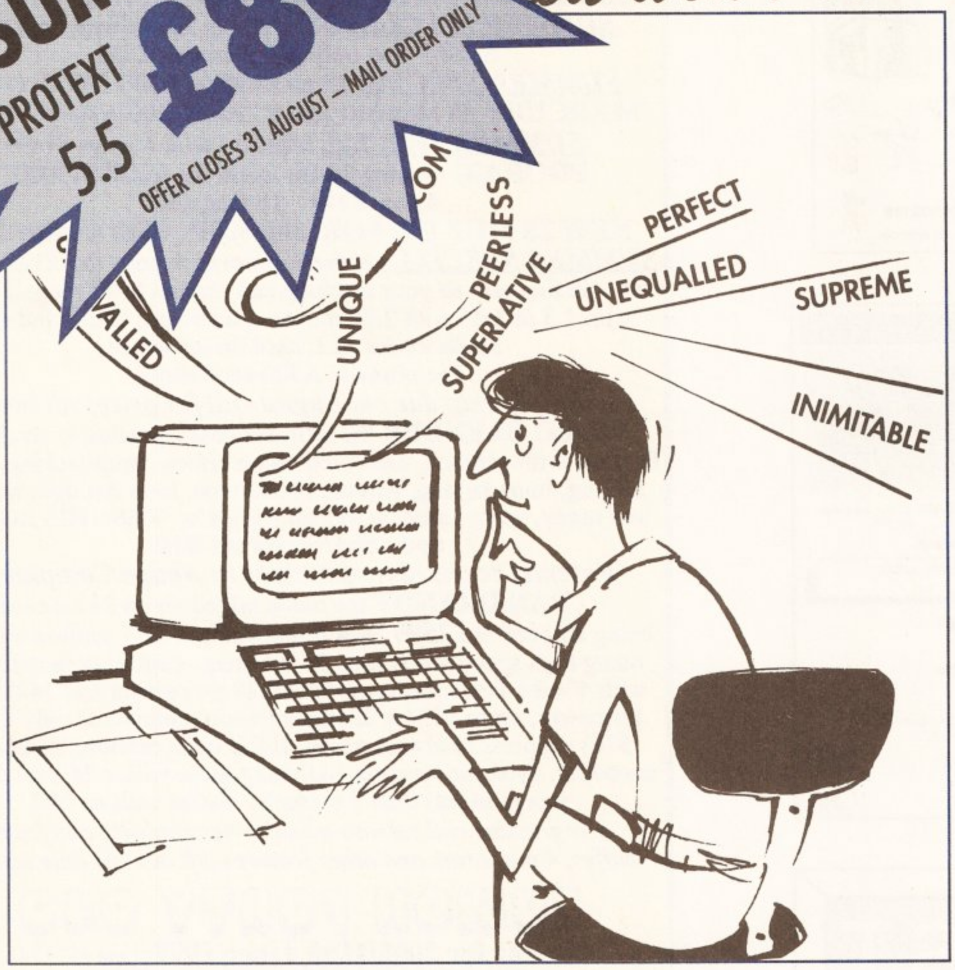
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Mini Coper

Mark Smiddy previews Europress Software's long-awaited Mini Office for the Amiga – an integrated home business package

M*ini Office* has been compared to the "Skoda Rapide" of computing. Serious users scoffed at it because it was: "cheap, limited and written in Basic". Nevertheless, that didn't stop Europress (then Database) Software selling something like half a million copies since it first arrived eight years ago. This must make it about the best selling home computing product ever – chew on that, doubting Thomas! The Amiga version, like its predecessors, is a fully integrated suite containing: word processor, database and spreadsheet plus graphic and disk management utilities.

You can't expect too much from a package which effectively retails at just over 12 quid per module – but there's more to *Mini Office* than the price might suggest. My preview copy came on three disks without any form of manual or packaging (so I can't comment on those) but the complete system should be due for release by the time you read this. At the time of writing the main menu had just been completed and was not available for review – but let's take a look at what *Mini Office* proper will offer...

WORD PROCESSOR

A word processor is probably the most basic piece of business software you could lay your hands on. A word processor is the next step up from a typewriter and with care, can double-up as databases or even a spreadsheet if you have a calculator handy. At the simplest level you will use your word processor to produce letters and reports. Getting more advanced you could use the mail merge to automatically address junk mail to your clients, friends and family.

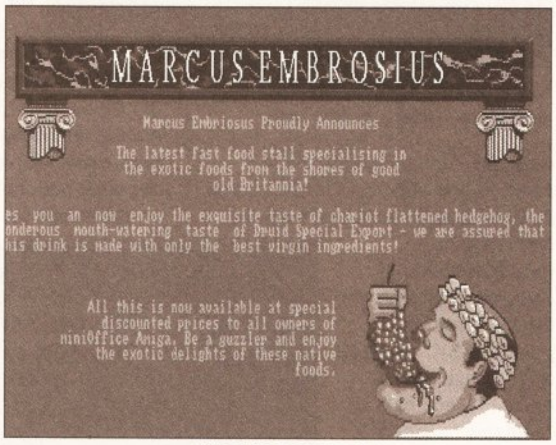
The early version supplied for review shows promise inasmuch as it will be a basic document processor – like *Notepad*, only a lot more reliable. Nevertheless, I should point out the promised 50,000+ word spelling checker and Amiga bitmapped font support were not available. Europress promises the final version will have partial WYSIWYG plus support for IFF graphics.

On the plus side, the review copy was more or less complete and boasts features such as adjustable tabs, negative indents, full out and right flush justification, and basic paragraph styles. Fancy features such as decimal and centring tabs are not supported and it is only possible to define 12 tabs altogether. If this sounds like a weakness, ask yourself how many times would you need to use them?

More useful facilities have been included though. Things like autosave, print preview, headers and footers, even automatically incrementing time and dates are all there. The sort of things you actually need – in letter or document templates for instance.

Perhaps the strangest omission is the lack of vertical and horizontal scroll bars. These have been replaced by the VCR-like control panel which graces the spreadsheet and database modules. As an upshot this also limits the screen to 80 characters wide, but again, very few jobs actually need to use a wider carriage.

As Amiga word processors go, this one is not going to win any prizes for power or originality, but nevertheless it is a stable and usable system. Compared to the likes of *Wordworth* and *Protext*, it's weak on features, but at least as slick as either in what it does do. Compared to its main competition, *Transwrite* and *Scribble*, it comes in a good length in front. Considering also, it comes in a pack costing little more than, say, *Kindwords 2* it does represent extremely good value for money.



Graphics support means you can produce more that just a standard letter – pamphlets and ads included

SPREADSHEET

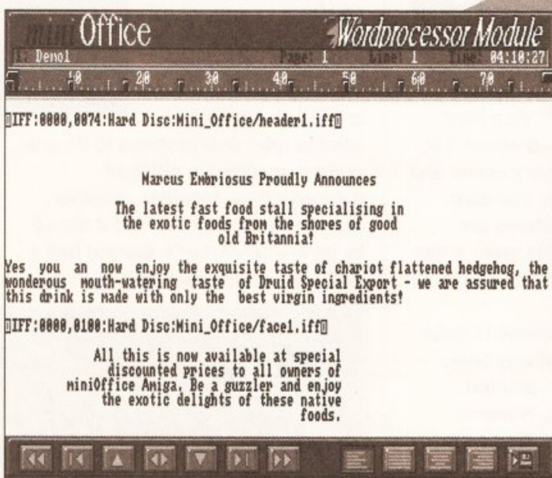
Although one of the most complicated modules to program, the resultant spreadsheet software is fairly impressive.

On paper at least, the sheet is quite basic – sporting a maximum grid size of just 52 columns by 100 rows. However, with plenty of memory available this does mean 5,200 cells in total – which is quite enough for most applications.

Think of it this way, 52 columns are just enough room to program a cashflow for every week in the year – and such a thing would be overcomplicated overkill. Put another way, some 'sheets offer 32768*32768 cells and would require over a gigabyte of memory, if every cell used just one byte of memory. (I know it doesn't work like that – but you get the gist).

> *"...adequate for a variety of home and small business applications."*

On the down side, block marking (which uses a similar system to Workbench 2) is not accompanied by live scroll. This means you can only drag-mark a block the size of the screen. Typically this means about 22 rows by 5 columns using the default settings. Interlace mode is not supported or required in a simple application such as this one.



The *Mini Office* word processor comes with a selection of features for tidying up your text

Something which beginners will find a real boon are the trigonometric functions (sine, cosine, tan etc). These can be configured to take their arguments in radians or degrees. Why hasn't someone thought of that before, I wonder? In most 'sheets, to find the sine of any angle you would enter something like: =SIN(RAD(A1)). *Mini Office* cuts out the middleman

and you can enter =SIN(A1). This doesn't appear to affect the recalc speed, but it keeps things simpler. Also, negative values are automatically highlighted in red (by default) rather than the more obtuse brackets; although this is configurable for those who need it.

So what can't it do? Only one window and therefore, only one spreadsheet can be opened at any time; and the window cannot be re-sized – which seems logical. Power users will find this a limitation, but this is not designed or sold as a power spreadsheet.

Since the graphics module is a separate entity, there are no built-in graphics. Of the four possible data sets (graph information) each one must be defined and saved separately. This is a nuisance but nothing too untoward.

A lot of thought has been put into the design of this module – and it shows; a lot of the gloss has been done away with leaving a usable, friendly application – if such a thing is possible.

I can well imagine anyone with more than a passing need for a spreadsheet will find it perfectly adequate for a wide variety of home and very small business applications. It does not have the clout for scientific needs, but this is typical of Amiga spreadsheets as a whole anyway.

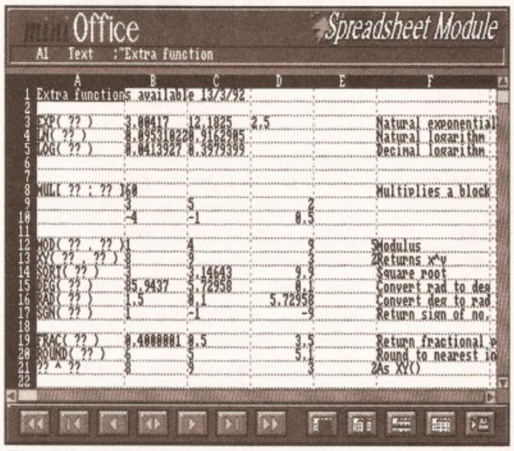
DATABASE

Flat file databases went out with Noah. Come to think about it, there should probably be a law against them – but that doesn't stop *Mini Office* including one. In practice, flat file databases can be very useful and more importantly, many standard relational database systems are used for just that. At this level, a flat file is all that's needed and this is all you get.

Setting up the database is quite straightforward – only a very basic set of field types are supported: Text, Numeric (integer), Numeric (real), Date and Toggle. Times are not supported in this revision. The interface is quite simple to use – you define the form by selecting a starting position for a field and clicking the mouse. This enables you to enter a field name and select its type.

Once this is done, you can start adding and editing records. Being a memory based system however, there is a limit to how many records can be stored. This in turn depends on how much memory is available and how large your template is. The size of each record is governed by what it contains, but there are only 20 rows by 80 columns of screen real estate to use.

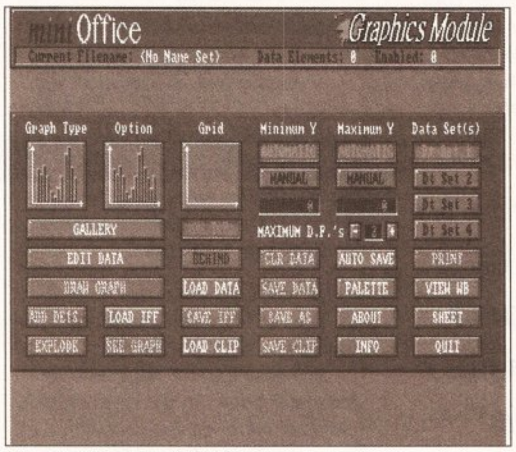
Searching the database can be a complex operation, but Europress has spent some time designing a system which can be used with the minimum of fuss. Even fairly complex



The *Mini Office* spreadsheet offers you a maximum of 52 columns by 100 rows – that's 5,200 cells

searches can be constructed in seconds and although I hate to admit it, the requester is clearer than the one found in Oxxi/Precision's *Superbase*. Search facilities include: "is greater than", "is equal to", "is less than or equal to", etc, plus a "contains" operator for text fields which can be case sensitive or insensitive according to needs.

The worst omission is the lack of a proper indexing system. Indices are more commonly used in relational systems to tie one or more records (in different database files) together. However, they are also useful to find a record by its key value. Let's say you had a database of compact disks – in order



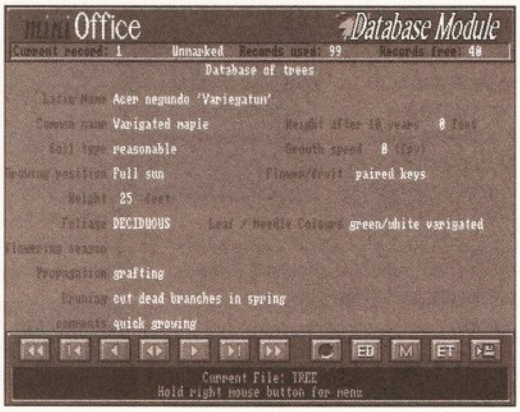
The graphics module offers you more control over graphs than normally possible with a spreadsheet

to find any particular title, you must search the entire database a record at a time.

By using an index, the application can calculate the index key value from an entry and use that to locate the nearest key value. Also, you can change the sorted order of records by just changing the key file. None of this is possible with *Mini Office*, but for the money this cavil can be overlooked. Overall, this is probably the weakest of the main three modules, but even so it's still a useful and workable system.

GRAPHICS

The graphics system is an integrated part of *Mini Office*, and not as you might expect, an internal part of the Spreadsheet module. It offers a number of different charts – pies, bars, lines etc, using up to four separate data sets – and can be used independently or as an adjunct



The *Mini Office* database is a perfect means of keeping track of information you'd like at hand...

to the spreadsheet and database modules. The resultant output is more practical than awe-inspiring so think of it as something that can be used to produce reasonable demographics in a short space of time.

Using a technique also found in top-sellers like *The Advantage*, the graphics module enables you to view a "gallery" of the available graph types. There are 18 in all, although many of these are just variations on a theme.

Realistically, the following charts are offered: Vertical bar (plain, stack, 3D, 3D stack, 3D perspective); Line (independent set, cumulative set, multiple set, cumulative multiple set); Area (normal, multiple, stacked); Pie (3D and normal both with positive or negative data sets). It sounds a lot – but what happened to horizontal bar charts, multiple pies, scatters and Hi-lo? Surely these would have been more useful than some of the more obscure variations offered here.

An unusual facility, and one of the advantages of a dedicated module such as this is the ability to edit the data!

"The graphics module enables you to view a gallery of all the available graph types."

Any of the four data sets can be changed, removed – even individual items can be enabled/disabled at will. Besides being incredibly easy to use, this facility is extremely useful and allows far more control over the graph than is normally possible (or practical) with a typical spreadsheet.

Another interesting, and potentially useful feature is manual annotation (labelling). The idea goes something like this... once the graph has been drawn you can recall it and add labels complete with line pointers. It works a little like a crude paint package, but this soon-mastered system is simple and effective. My only complaint is that the labels are bitmapped, rather than object oriented. Once a label has been placed, it cannot be moved, edited or removed altogether.

My real gripe with this one is tha the user interface is a bit too crowded. It's all front end and no menus.

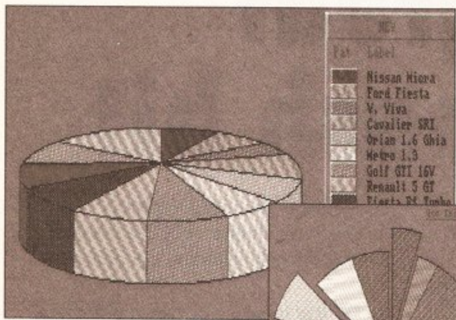
Considering the price of *Mini Office*, this crowding is a minor flaw - although it may be something Europress will contemplate for a future revision. Like the rest of the *Mini Office*, this module represents fine value for money is very workable, and quite justifies its inclusion.

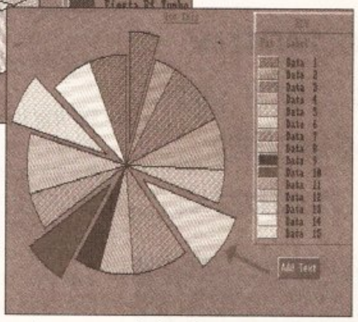
DISK UTILITIES

The disk utilities program has to be the odd one of the bunch. Why would anyone include a set of disk utilities with an overtly small business/home office package? The answer is quite simple really – and you only have to read our regular AmigaDOS column to discover why. Although Workbench and AmigaDOS 2 are a great improvement over thei

predecessor, they can still be a bind to handle.

Functionally this is a very basic suite of disk utilities, although it covers the most important housekeeping functions which would normally be carried out by Workbench or AmigaDOS, namely: Copy, Rename, Delete, MakeDir, DiskCopy and Format. However, although more friendly than AmigaDOS it is nothing like as bomb-proof as Workbench. For instance, it does not look for tagged dot-info files when it performs an operation.





Graphs can be annotated with a few clicks of the mouse – when you've drawn the graph, simply recall it and label with line pointers...

Why is this so important? Well, beginners may (out of ignorance) just copy an application file and omit the accompanying dot-info. When they come to launch the program from Workbench, it will not show up because the dot-info is missing. The same caveat also applies to renaming just the application file or its dot-info file.

This could cause some confusing errors and cause more trouble than it is solves. A "Beginner mode" would be useful here, so the program could look for dot-info tags with the same name and perform operations on those too. I should add, *Mini Office*'s Disk Utilities is not the only program of its type to suffer with this flaw.

The screen layout is clear and easy to follow – the lack of features helps here – because there is less to complicate and confuse matters. Although this is just an extra freebie, chucked in for good measure, it finishes off the whole suite very nicely and all credit goes to Europress for including it.

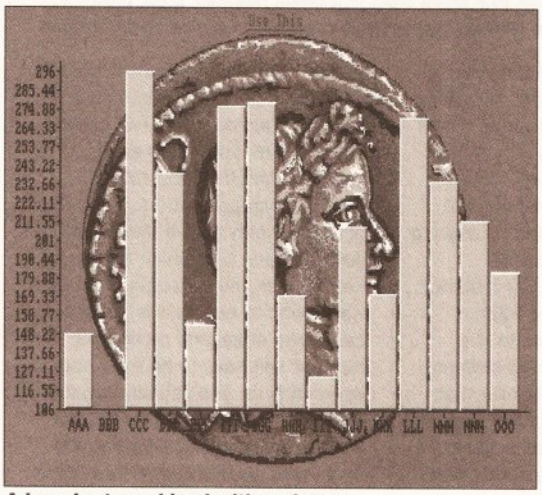
CONCLUSION

Mini Office has always been something of an "off the shelf" product – one that quite caught the public imagination at the time of its first release in 1984. As such it is unfair to expect it to perform as a collection of custom built applications you could end up paying more than £300 for.

The design of the user interface is quite clear, but more attention to detail should have been spent on some functions which are more pretty than they are practical. For instance, all the buttons are active 3D bas-relief – a concept pinched from Windows – but the difference between ON and OFF is not clear. Worse still, functions which have a toggle action work like the radio buttons found in GEM. This is a glaring mistake and the Europress designers would do well to look closely at the toggle buttons in Workbench 2 before this product is finally released.

Being written in AMOS – an interesting achievement in itself – means it does not multi-task in the way a true Intuition based package would, but this could be a bonus. All that aside, *Mini Office* will find homes in two areas:

• Home users will find *Mini Office* provides most of the functions required for simple jobs – from simple accounts, to letters and simple databases. Also, the disk utilities section is a very worthwhile inclusion for those still having problems mastering AmigaDOS. Overall the purchase price can be easily justified and I have no hesitation in recommending it.



A bar chart combined with a picture can achieve some quite professional looking graphs

• There has been a rash of small companies popping up in the last four or five years – mainly thanks to the government incentives. However, a computer and associated software form a very large capital expense and one which must be considered carefully. Amigas can be had on the second-hand market relatively cheaply now, but the same can not be said of the software – even integrated packages can cost over £100. So now you have the choice of a complete system for less than £60. This makes expansion a whole lot more viable because a potential user can expand to more powerful dedicated packages at a later date.

> **"Mini Office deserves closer inspection from anyone with an interest in serious computing."**

Mini Office is not the best thing since sliced bread – and no longer the innovation it was back in 1984. My biggest moan is the integration is too fused together, too insular if you like. There is no facility to import/export data in anything but the most basic formats and it could be argued that Europress wants to sell you a product you'll have to stick with; expanding with *Mini Office 2* perhaps?

Take nothing from *Mini Office* Amiga. As it stands, it is excellent value for money and as such, deserves closer inspection from anyone with a vague interest in serious computing. Assuming all the bugs have gone at the time of release, I will have no hesitation in recommending it to serious beginners everywhere. In fact, I would like to see *Mini Office* in some future Amiga bundle, possibly with the A500 Plus replacement when it arrives – are you listening Commodore? AS

SHOPPING LIST

Mini Office........................ £59.99
by Europress Software
Europa House
Adlington Park
Macclesfield SK10 4NP
☎ 0625 859444

CHECKOUT MINI OFFICE

Word Processor

Speed ●●●●○
Most operations are very fast – even scrolling.

Functions ●●●○○
A very basic system. Spell checker is a bit too small.

Ease of Use ●●●○○
Everything is where it should be and works well.

Overall rating ●●●●○
A good – if basic – introductory word processor.

Spreadsheet

Speed ●●●○○
Far from fast, but quite usable nevertheless.

Functions ●●○○○
A basic set with all the most useful functions.

Ease of Use ●●●●○
Could be improved in some areas.

Overall rating ●●●○○
Nothing flash but an adequate 'sheet for general use.

Database

Speed ●●●○○
Only average for what is a memory based system.

Functions ●●●○○
Limited compared to other systems.

Ease of Use ●●●○○
A little fiddly in some areas, but nothing to worry about.

Overall rating ●●●○○
Not *Superbase* by any stretch of the imagination.

Graphics

Speed ●●●●○
Surprisingly fast – even when using patterned colours.

Graphic Options ●●●●○
Quite a lot, considering what it actually costs.

Ease of Use ●●●○○
Front end is too flowery – but it works.

Overall rating ●●●●○
Among the best of its genre on the Amiga.

Disk Utilities

Speed ●●●●○
Quite respectable.

Functions ●●○○○
Even *SID 1* had a better selection.

Ease of Use ●●●●○
Clean, uncluttered yet relatively powerful.

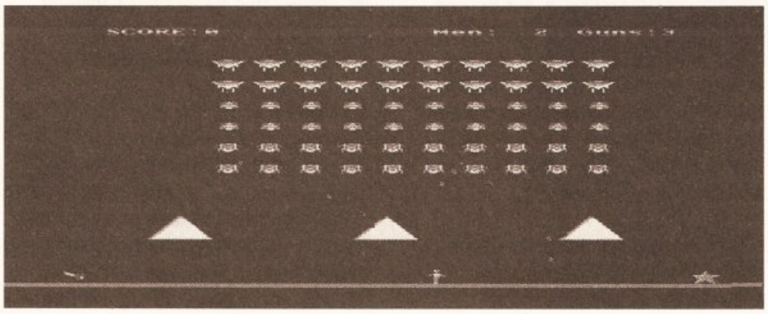
Overall rating ●●●○○
Not *Directory Opus*, but a neat inclusion nevertheless.

10 TOP TIPS Writing the next great arcade smash hit

Hey…it's summer! Cliff Ramshaw puts down his C compiler, puts up his feet and shows you how life could be a beach all year round…

One of the most enjoyable programming tasks you can set yourself is to write a game, preferably a fast, flashy arcade-style one. You might be surprised to learn that the principles behind this sort of game are simple.

We're not going to tell you the nitty-gritty of achieving graphical and audio effects here, which depend very much on the language you choose to use: what we *are* going to tell you is how to implement the basic structure which is the key to just about every arcade game that has roared and zapped its way across a computer screen…



Does a game like this look like more than you could handle? Well, follow our ten top tips and you'll be well on your way to creating your own masterpiece

❶ Initialisation – There are actually two stages to this. Firstly, your program must make itself at home as soon as it has begun to run. Setting up a custom screen, loading graphics, samples and sprites, and initialising the high score table are examples of this. Then there must be a secondary initialisation routine that is called at the start of each new game. It will do such things as re-setting the player's score, altering the position of the player's sprite and resurrecting the aliens (or whatever) ready to be killed again.

❷ The main loop – The heart of your program will consist of a very simple loop. Execution of the loop will begin after the two stages of initialisation, and continue until the end of the game. It simply calls a succession of routines – move and draw player, move and draw enemies, check for collisions and so on – and, assuming the game isn't over, control will then jump back to the beginning of the loop. The end of the game is usually checked for by looking at a variable which holds the number of lives left to the player. It gets reduced every time an enemy collides with the player, and when it reaches zero the game's up.

❸ Player movement – This will probably be the first routine that is called from your main loop. Before moving the player's graphic it must check whether a move is necessary – done by reading the joystick, keyboard or mouse. Actually moving the player's graphic on the Amiga is fairly straightforward. Because of the clever system of sprites (small user definable shapes that can move independantly of the main screen) movement is implemented by altering the co-ordinates of the sprite representing the player. For instance, to move the player to the right, simply add a value of one to the corresponding sprite's X co-ordinate.

It's worthwhile mentioning that you should keep your control system simple. Most of the really successful games don't trouble the player with much more than a joystick and a fire button. If players find the game too difficult to control, they're going to get bored.

❹ Handling enemies – It's best to use the sprite system for enemies too, since it provides the smoothest, easiest method of animation. How you handle the directions they move in depends on the sort of game you're writing. With the likes of *Space Invaders*, all of the enemies move according to a preset pattern – across the screen one way, down a bit, and across the screen in the opposite direction. All you really need for this type of movement is a single variable describing which direction the enemies are moving in 'en masse'. For enemies which exhibit more intelligent movement (such as those in *Pac Man*), you will need to store information about each enemy's direction separately, probably alongside the co-ordinates of each enemy and, if there are several types with which the player has to deal, the variables detailing which kind of enemy it is. In this case, one of several movement routines will have to be executed depending on this variable's value, with the process being performed several times inside a loop which deals with each enemy in turn. One of the simplest intelligent enemy strategies is where the enemy moves towards the player. The enemy's co-ordinates are checked against those of the player: if the X co-ordinate is lower than the player's then it is increased, if higher it is decreased; similarly for the Y co-ordinate.

❺ Shooting – In most games, both the enemies and the player can shoot. This involves the creation of another moving object, along with its own sprite. Most missiles move in a single direction, so all you have to store is the missile's co-ordinates and its direction of travel. Some attempt to move towards the player, as detailed for the enemies above. Missiles are really a special case of enemies, in that they are moving objects controlled by the computer.

❻ Big bangs – Collision detection forms a very important routine. The Amiga's sprite system informs you of any sprites that have overlapped. All your program has to do is decide whether or not it's an important overlap. For instance, a collision between two enemies is usually ignored, whereas a collision between an enemy and the player's missile results in the deletion of the enemy and the creation of an explosion sprite. A collision between an enemy and the player means that the 'number of lives' variable has to be decremented and some sort of re-initialisation has to be done.

❼ Plan before you write – As with any program, always think carefully about what you are trying to do before trying to code it. Modifying code to include a brilliant idea you've just had is a right pain.

❽ Flash techniques – Try to avoid basing a game around a particularly clever programming technique. It's not the latest graphical techniques doing the rounds in demos that make a good game; it's good gameplay. The simplest ideas *are* often the best.

❾ High scores – Don't forget to include a high score table in your game. It's very easy to implement, and the sense of competition it engenders (whether between friends or with a single player trying to better him or herself) helps make the game that much more addictive.

❿ Legalities – Make sure your code is operating system legal. It is possible to gain a slight edge in speed by writing directly to hardware registers and so on, but this is also tantamount to a guarantee that your program won't work on any model of Amiga other than your own. If you make use of Commodore's header files, and use them to call the operating system libraries, you will be assured of compatibility with any future Amigas. AS

Cracking the Shell

Mark Smiddy explores complex maths and data array handling in AmigaDOS and begins a two part series showing you how to program your own digital calendar

Zeller's congruence is something of a mouthful after, say, a few pints; anything mathematical brings tears to my eyes. Zeller's congruence is a complex integer-based formula to calculate the day number of the first day in any year from the start of the Georgian calendar (1582) to well into the next millennium, including leap years. It's just as complex to express as a mathematical formula too. Nevertheless, Zeller's mathematical prediction is widely used in applications such as perpetual digital calendars.

The first day numbers (there's seven of them from zero to six) are fixed and it is possible to program say, a watch, with a hundred or so in packed binary (2 values per byte) and use them to fix the calendar. However, that approach is a bit feeble so in this part of Cracking the Shell I'll show how to program the congruence in AmigaDOS with a complete calendar program. As you'll see, the maths are easy, the hard part is making use of the figures!

First though, here is one way to express Zeller's congruence in most versions of BASIC:

```
10 INPUT "Year", Year
20 Century=INT( (Year-1)/100)
30 Decade=Year-1-100*Century
40
Day=(799+Decade+(Decade/4)+ ↵
(Century/4)-(2*Century)) ↵
MOD 7
50 PRINT "Day number is: ↵
";Day
```

Looks hair-raising at first glance doesn't it – but it breaks down quite well. Lines 20 and 30 split the year into two parts – the century number (1800, 1900, 2000 etc.) divided by 100; and the decade number minus one. Therefore, 1992 breaks down thus:

```
Century=19
Decade = 91
```

Line 30 uses these values to calculate the number of the first day in January of any particular year. In 1992 for instance the first day is Wednesday, so the result is 3 (where Sunday=0 and Saturday = 6). This is just a piece of simple arithmetic and even AmigaDOS 2 can handle that without too many problems.

The script programs presented here are not suitable for earlier versions of AmigaDOS because of the advanced maths and variable handling, but if enough of you make a fuss, I will attempt to re-program this example for AmigaDOS 1.3.2. This sort of problem is not suitable for AmigaDOS 1.3 because the EVAL command did not support multiple arguments. Enthusiastic owners might like to try this as an exercise.

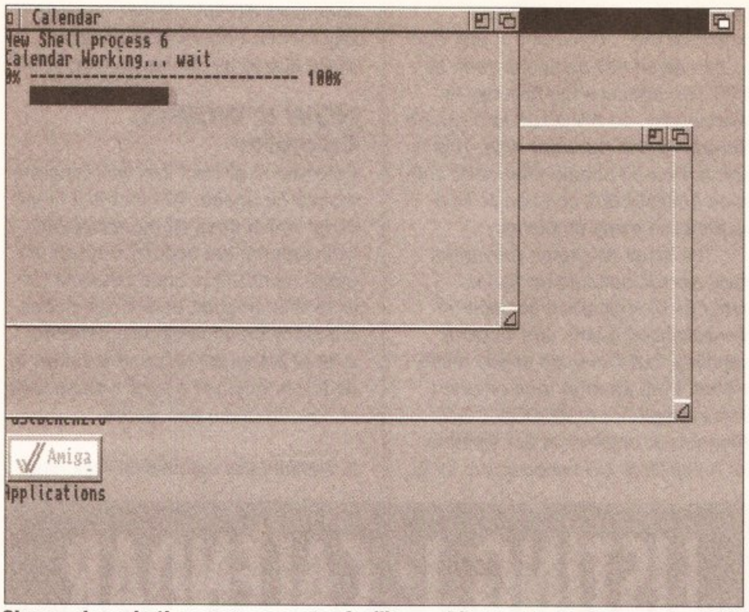
HOW IT WORKS: Calendar

Calendar is divided into two separate scripts for speed. The first is a linear script which does all the necessary calculations, the second displays an entire month. It is quite possible to write this program as a single script, but since the printing side performs a lot of backward loops, it is faster to do it this way. Let's take a close look at how the main part works.

1. Defines the arguments. Calendar

LISTING 1: CALENDAR

```
1.  .key year/a, month
2.  .bra {
3.  .ket }
4.  .dollar !
5.  resident c:eval add
6.  set M {month}
7.  set Y {year}
8.  eval $Y-1 to env:Date
9.  eval $M-1 to env:Month
10. echo "$Date" first=1 len=2 to env:Cent
11. echo "$Date" len=2 to env:Decade
12. eval (799+ $Decade+($Decade/4)+($Cent/4)-(2* $Cent)) ↵
    mod 7 to env:Day
13. eval (($Cent+1) + $Y) mod 4 to env:leap
14. if val $leap NOT EQ 0
15. eval $month * 3 +2 to env:slice
16. echo ".31.28.31.30.31.30.31.31.30.31.30.31" ↵
    first=$slice len=2 to env:DiM
17. eval $month * 4 +2 to env:slice
18. echo "..00..31..59..90.120.151.181.212.243.273.304.334" ↵
    first=$slice len=3 to env:Elapsed
19. else
20.  eval $month  * 3 +2 to env:slice
21. echo ".31.29.31.30.31.30.31.31.30.31.30.31" ↵
    first=$slice len=2 to env:DiM
22. eval $month  * 4 +2 to env:slice
23. echo "..00..31..60..91.121.152.182.213.244.274.305.335" ↵
    first=$slice len=3 to env:Elapsed
24. endif
25. eval $month  * 4 +2 to env:slice
26. echo  >T:MFile "Calendar for: " noline
27. echo >>T:MFile " Jan Feb Mar Apr May Jun Jul Aug Sep ↵
    Oct Nov Dec" first=$slice len=3 noline
28. echo >>T:MFile " $Y"
29. echo >>T:MFile ↵
"*n====================================================="
30. echo >>T:Mfile ↵
"Sun*e[IMon*e[ITue*e[IWed*e[IThu*e[IFri*e[ISat"
31. echo >>T:MFile ↵
"===*e[I===*e[I===*e[I===*e[I===*e[I===*e[I==="
32. eval ( $Elapsed + $Day ) mod 7 to env:Day
33.     eval $Day * 8 to env:Space
34. echo >>T:MFile ↵
"....................................................." ↵
    first=1 len=$space noline
35. setenv daynum 1
36. eval $day to env:wrap
37. eval $DiM + 1 to env:DiM
38. newshell from s:MonthPrint  con:0/0/480/140/Calendar/Auto
```



Shown above is the progress meter facility – while the Amiga takes about 30 seconds to work out the calendar, this measures its progress

only requires a year to work, but you can supply a month number too. The month argument could have been a month name, which adds complexity and means you have to type more.

2-4. Re-defines the bra, ket and dollar symbols. Dollar is changed here to make the script easier to read – you'll see why later on.

5. Preloads EVAL into memory for speed. Note the ADD argument is supplied here to the command and can be safely removed without affecting any other scripts.

6-7. Creates local environmental variables "Y" and "M" containing the year and month (if any) specified from the command line.

8. Subtracts 1 from the year number and stores the result in the global environmental variable, "Date". (You should note here, the dollar symbol is used to signify an environmental variable – it is not affected by the .DOLLAR command used earlier).

9. Subtracts 1 from the month number and stores the result in the variable, "Month".

10. A natty little trick to remove the century number from the date variable. Assuming the value held in Date was 1991, it works like this:

```
ECHO "$Date"
```

is read by AmigaDOS thus:

```
ECHO "1991"
```

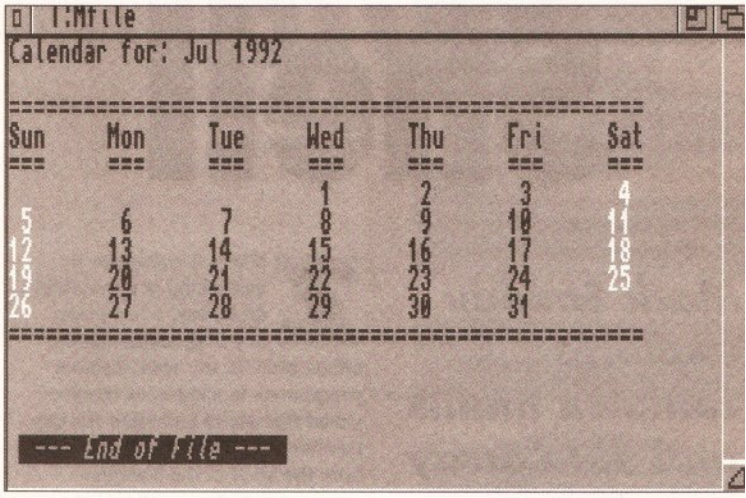
because the local variable is expanded as the command executes. This is then affected by the FIRST and LEN keywords – FIRST=1, tells ECHO to display the leftmost character on the string. LEN=2, makes ECHO display just two characters – ie the century number. In fact, this value is not displayed, instead it is sent to a new global environmental variable, "Cent".

11. Like step 10, this removes two characters from the "Date" variable. However, since the FIRST keyword is not supplied, ECHO reads the rightmost two characters – the Decade in other words. As before, this value is used to create an environmental variable (Decade).

LISTING 2: MONTHPRINT

```
echo "Calendar Working... wait"
echo "0% ————————————————" first=1 len=$DiM noline
echo "— 100%*n     " noline
lab loop
if val $DIM GT $daynum
eval ( $wrap +1) mod 7 to env:wrap
if val $daynum NOT GT 9
echo >>T:MFile " " NOLINE
endif
if val $wrap NOT GT 1
echo >>T:MFile "*e[32m$daynum*e[31m" "*e[I" noline
else
echo >>T:MFile $daynum "*e[I" noline
endif
eval $daynum + 1 to env:daynum
if $wrap eq 0
echo >>T:Mfile ""
endif
echo "*e[41m *e[40m" noline
skip loop back
endif
echo >>T:Mfile
"*n================================================"
more T:Mfile
echo ""
resident eval remove
endcli
```

12. This looks a lot worse than it is! It uses the BASIC translation of the Zeller's congruence method to calculate the day number of the first day in the required year. A point worth noting here is there *must* be a space before the dollar symbol used to signify an environmental variable. The result is stored in (yet another) global variable, "Day".



This is what the calendar looks like when you've put Zeller's congruence to work. Perpetual calendars have never been easier...

13. It is an interesting fact that you can determine if a year is a leap year (29 days in February) by performing modulo 4 on it. Leap years always return a value of 0. This calculation performs MOD 4 on the year number (supplied at the command line) and stores the result in the global environmental variable, "Leap". Just to aggravate matters though, most centuries are *not* leap years. A century must be divisible by 4 (1600 2000, 2400 etc) to be a leap year.

14. Tests the value of "Leap" and determines what to do next. If the year is not a leap year, execution continues at Step 15; if it is, execution branches to Step 19.

15-16. This two-part step does some string slicing to obtain a value from an array of numbers. Each of the 12 months in a year has a particular number of days, you knew that much of course – but the computer does not. In BASIC for instance, you would set up an array like this:

```
FOR N=1 TO 12
READ DaysInMonth(N)
NEXT N
DATA 31,28,31,30,31, ↲
30,31,31,30,31,30,31
```

and read the array thus:

```
Days=DaysInMonth(Month)
```

where the variable "Month" selects the correct element from the array. AmigaDOS cannot handle arrays in this way – but by careful use of string slicing (and some careful typing) this can be achieved quite simply. I'll explain this step in detail because it occurs several times in this script.

The first job is to construct the array of numbers. This is just the number of days in each month as demonstrated in the BASIC example above.

To keep the script easy to read (and de-bug) the list is constructed with full stops between each value – although this is not strictly necessary. This leaves something like this:

```
".31.28.31.30.31.30.31.↲
31.30.31.30.31"
```

Each number is three characters long, so you can pick any value by multiplying the offset (the month number) by three. A feature of AmigaDOS means the first character in the string is numbered one. Also, since the months start from zero (determined earlier) we must add two to get the correct offset. If that makes your brain itch, consider this:

Take June – month number five. In the script, the variable "Month" will be holding four. Therefore:

```
Offset = (4*3)+2 = 14
```

The 14th and 15th characters in from the start of the data are "31", the fifth number in the data. Taking this offset as a start value and reading two characters, you can create an environmental variable...

15. Calculates the starting position using the environmental variable Month and sending offset result to global environmental variable, 'Slice'.

16. Starting from the position determined by 'Slice' this takes two characters from the string and saves the result in 'DiM' (Days In Month).

17. Creates another offset variable, used to read the data at Step 18...

18. ...here. This data is the number of days in the year that have elapsed at the start of the current month. Note this table is almost identical to the first one except the numbers are two or three characters long. To read a data table in this way, it is vital all strings are the same length – if a number is composed of two digits, it must be preceded by a space.

19. If control reaches here from Step 18, it branches to Step 24 otherwise it continues at Step 20.

20-23. These lines are essentially the same as 15-18, however these data strings are used for leap year exceptions. The data changes after February which has 29 days here.

20. Calculates the offset variable used at Step 21...

21. ...which determines the number of days in the selected month. This value is sent to the variable, "DiM".

22. Calculates the offset variable used at Step 23...

23. ...which determines how may days have elapsed up to the current month. It is important to note when you enter this program, *all but three* of the values change in this data set!

24. Closes the IF...ELSE...ENDIF construct opened at Step 14.

25. Prepares another string slice offset. This one is used at Step 27 to grab the month name.

26. Creates a text (MFile) file in T: with an initial string. Note here, the NOLINE switch is used to suppress the extra line feed. At this stage MFile contains:

```
Calendar for:
```

27. Uses ECHO's string slicing facilities plus the append to file operator (>>) to attach the current month name to the message string, MFile. If month 4 had been requested, MFile now contains:

```
Calendar for: Apr
```

28. Next, the year is added. This is taken from the local environmental variable (Y) created at Step 7. MFile now looks like this:

```
Calendar for: Apr 1992
```

29. This appends a "ruler" to the message file. (Equals signs are used here, but you can used any convenient character). Note the line feed at the start of the line which creates something like this:

```
Calendar for: Apr 1992
======================
```

30. This appends the 'day names' heading to the message file. Note how "*e[I" (TAB) escape sequences are used to tabulate the text correctly.

31. Like Step 31, this adds rules to the day names. You can use any characters you prefer here, but you should keep the tab sequences.

32-34. Calculate the initial print position of the first date under the day name rules. Since this is quite tricky, I'll look at it in a bit more detail. The idea is quite simple, the day names appear across the top from Sunday to Saturday like this:

```
Sun Mon Tue Wed Thu Fri Sat
=== === === === === === ===
```

Now, let's take January 1992 (January is the simplest month). The first of the month is a Wednesday (Day=3) so the program has to start printing 24 characters (1 TAB=8 characters) in from the start, so:

```
Sun Mon Tue Wed Thu Fri Sat
=== === === === === === ===
                 1   2   3   4
  5   6   7   8   9  10  11
```

This is quite simple to produce using the formula:

```
Space = Day * 8
```

But what happens later in the year? Take May for instance. May 1 1992 is a Friday so how can we calculate that from the day number returned from Zeller's congruence? This is where the 'Elapsed' variables determined at Steps 21 and 23 come into effect. These determine the number of days elapsed up to the start of the current month. At January 1, no days have elapsed, but by the May 1, 121 days have passed. By adding this to the initial day number and dividing by seven, the remainder is the offset to the first day in the week. The formula is:

```
Space = ((Day+Elapsed) ↵
MOD 7) * 8
```

32. This is the AmigaDOS version of the above calculation. 'Elapsed' and 'Day' are summed first. Then the modulo (remainder after division is taken and stored in 'Day'. The calculation is split in two as the value of 'Day' is required elsewhere.

33. Day's new value is multiplied by 8 and stored in the new global environmental variable, 'Space'.

34. Uses ECHO's string slicing function to produce an effect similar to the STRING$() function found in most modern BASICs. In the listing these are shown as periods (.) but they should be entered as spaces.

35. Sets the global environmental variable, "daynum" to 1. "Daynum" is used by the display script.

36. Copies the value of 'Day' to a new global environmental variable, 'wrap' (used by the display script). It is interesting to note, this operation could be accomplished by COPY. However, EVAL has been used because that command is made resident for the script.

37. Increments the value held in 'DiM' by 1.

38. Starts display script, MonthPrint. It is important to note how this has been achieved. Normally, the script would be called using EXECUTE or RUN EXECUTE; the latter being closest to the final solution. Using NEWSHELL allows you to effectively RUN launch EXECUTE and specify a window size at the same time.

NEXT MONTH

In next month's Cracking the Shell, I'll be explaining how the second part of this program works and modifying it so you can send an entire year to a printer – miss that and you'll be buying calendars forever! AS

GOTTA PROBLEM?

If you get stuck with AmigaDOS or there is anything specific you would like to see covered here, drop a line detailing your conundrum to: Mark Smiddy, Amiga Shopper, 30 Monmouth St, BATH, BA1 2BW. Sorry, no personal correspondence can be entered into. You can EMail me on CIX @ "SMIDOID".

AMIGADOS 2 MASTERCLASS

Attention dual drive owners who are still experiencing difficulty with Fountain. The solution given in the manual, one I have seen proposed in the past is to re-assign the LIBS: directory to point to the correct place so Fountain can access diskfont.library version 37. This is not a complete solution and neither is my preferred option to copy the new diskfont library to the boot disk. The problem basically is this: Fountain requires extra files from AmigaFonts 2 and refuses to boot if it cannot find them. This is not a problem on a hard disk-based system because the extra font files are copied across to the hard disk during normal installation.

The following commands (written as script if you prefer) should start Fountain painlessly.

```
ASSIGN FONTS: AmigaFonts2.0:Fonts ADD
ASSIGN LIBS: AmigaFonts2.0:Libs ADD
FOUNTAIN
```

The trick is to use the ADD switch to add extra directories to the assignment. This is not a complete solution because some software (including AmigaDOS) only searches the primary assignment. The primary assignment is the one created at boot time or by direct use of the ASSIGN command. You may however, have as many secondary assignments as you wish.

LISTINGS LISTINGS

THIS MONTH: A METRIC CONVERTER WRITTEN IN AMOS

Still confused by all that metrification lark? Then worry no longer, because we've got a program that will convert inches to centimetres faster than you can say "I wonder how many centimetres there are to an inch".

Multi-Con is written in AMOS, and is by Christopher Swift of Bingley. Apparently it was originally written for an Oric-1.

The program is very easy to use, being almost entirely menu driven. Just select the type of conversion you require (metric to imperial, or vice versa), then type in the quantity. *Multi-Con* will handle distances, areas, volumes, masses and weights. Many thanks for your entry, Christopher; you'll be getting £20 in the near future.

And if the rest of you want to earn some cash, just get those masterpieces rolling in. Programs of any type are admissable: serious and useful, wild and wacky, or stunningly creative. Just remember that we can't print listings that rely on binary files for sprites, samples and so on.

We want your listings! Display your programming prowess before your fellow Amigans and earn fame, fortune and everything that goes with it (£20)

All you have to do is pop your program on an AmigaDOS disk (along with source code if it is compiled or assembled) and send it to us at the following address:

Listings
Amiga Shopper
Future Publishing
30 Monmouth Street
Bath
BA1 2BW

Don't forget to include a stamped addressed envelope if you want your disk returning. Some form of printed documentation would be nice, too.

Many thanks, luvvies, for all the entries so far – keep 'em coming.

```
Rem   *****************
Rem  *    Multi-Con    *
Rem  *                 *
Rem  *   Version 3.1   *
Rem  *     (Amiga)     *
Rem  *                 *
Rem  * By Chris Swift  *
Rem  *                 *
Rem  * Writen in Amos  *
Rem  * V1.2 April 1992*
Rem   *****************
'
BEGINING:
 Gosub SETUP
'
MAINLOOP:
 Do
 Loop
 End
'
```

This is the main loop. Everything is menu driven, so no program statements are needed within the loop itself.

The following are routines called depending on which of the menus is selected by the user. The first, Conversion_B, refers to the second set of conversion options. It indexes into the conversion data by adding a value of 19 on to the number of the menu selection chosen by the user.

```
CONVERSION_B:
 SELECTION=19
'
CONVERSION_A:
 SELECTION=SELECTION+Choice(2)
  Restore
   For COUNT=2 To SELECTION
  Read WORD1$,WORD2$,FOMULA#
 Next COUNT
 WORD$=WORD1$+WORD2$ : WORD1$=Left$(WORD1$,Len(WORD1$)-1)
'
 AMOUNT#=0.0
 On Menu Off : For X=1 To 5 : Menu Inactive(X) : Next X
  Do
    Clw : Print : Print WORD$;"  ('Return' to exit.)"
```

Read data until required piece is reached, decided by the variable SELECTION.

```
      Print : Curs On
       Print "Please enter amount:"; : Input AMOUNT$ : ↵
AMOUNT#=Val(AMOUNT$)
        If AMOUNT$="" Then Exit
         ANSWER#=AMOUNT#*FOMULA#
          Print
         ANSWER$=Str$(AMOUNT#)+" "+WORD1$+" = "+Str$(ANSWER#)+↵
" "+WORD2$
        If OPUT=2 Then Lprint ANSWER$
       Window RESULT
     Centre ANSWER$ : Print
    Window 1
   If RESULT=1 Then Print : Print "Press any key..." : Wait Key
  Loop
  SELECTION=0 : Curs Off : Clw
   For X=1 To 5 : Menu Active(X) : Next X
   On Menu On
  Return
'
```

Get user's input as a string and convert it to a decimal number.

Send information to printer if the printer option has been selected.

The following is called if the user selects the printer option. It toggles between hardcopy or a screen-only output.

```
HARDCOPY:
 B=Choice(2)
  If B=1 and OPUT=1 Then OPUT=2 : Menu$(5,1)="Printer On" : ↵
On Menu On : Return
  If B=1 and OPUT=2 Then OPUT=1 : Menu$(5,1)="Printer Off" : ↵
On Menu On : Return
 On Menu On : Return
'
DISPLAY:
 B=Choice(2)
   If B=2 Then Window 2 : Clw : Window 1 : On Menu On : Return
   If B=1
    On RESULT Gosub WINDWON,WINDOFF
   End If
 Return
'
```

```
WINDWON:
 RESULT=2
  Wind Open 2,90,110,50,16,2 : Ink 1,0
   Title Top "Results" : Window 1
   Menu$(4,1)="Result window on"
  Menu Active(4,2)
 On Menu On
Return
'
WINDOFF:
 RESULT=1
  Menu$(4,1)="Result Window Off" : Window 2 : Paper 1 : ↲
Clw : Wind Close
 Menu Inactive(4,2) : Window 1 : Paper 2
 Clw : On Menu On
Return
'
PROGRAM:
 If Choice(2)=2 Then INFO : Return
'quit
 Wind Close
  Menu Del(1) : Menu Del(2) : Menu Del(3) : Menu Del(4) : ↲
Menu Del(5)
  If RESULT=2 Then Window 2 : Wind Close
 Screen Close 1 : Pop
 End
'
'
```

Set up a custom screen, along with a window. Also select colours and print author's message.

```
SETUP:
Screen Open 1,640,256,4,Hires
Palette $0,$C,$EEE,$F00
Ink 1,0
Wind Open 1,90,10,50,12,2 : Title Top "Multi-Con."
  Window 1 : Pen 1 : Paper 2
  Clw : Wind Save : Curs Off
   Print :
   Print "NOTICE:- "
   Print "========"
   Print "All effort has been taken to ensure the accuracy";
   Print "of the conversions made by this program,but the ";
   Print "author can not except responsibility for any    ";
   Print "loss or damage due to the use of this program.  ";
'
```

Set up each of the menus. In the case of the two conversion menus, notice how the data has been used twice – once to supply the text for the menus, again to supply the text when a specific conversion is taking place.

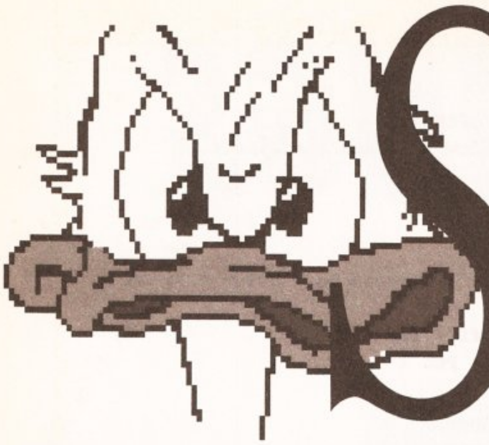
```
'set up the menus...
 Restore
  Menu$(1)="Program "
   Menu$(1,2)="About"
  Menu$(1,3)="Quit"
Menu On
'
 Menu$(2)="Selection 1        "
  For COUNT=2 To 20
   Read WORD1$,WORD2$,FOMULA#
   Menu$(2,COUNT)=WORD1$+WORD2$
  Next COUNT
Menu On
'
 Menu$(3)="selection 2        "
  For COUNT=2 To 20
   Read WORD1$,WORD2$,FOMULA#
  Menu$(3,COUNT)=WORD1$+WORD2$
 Next COUNT
Menu On
'
 Menu$(5)="Printout    "
  Menu$(5,1)="Printer Off"
   Menu$(4)="Windows               "
  Menu$(4,1)="Result Window Off"
Menu$(4,2)="Clear result window " : Menu Inactive(4,2)
Menu On
'
 RESULT=1
  OPUT=1 : Pen 3
    Print : Print Space$(10); : Inverse On : Print " Press ↲
Mouse to continue. ";
    QW=Mouse Key : Inverse Off : Ink 1,0
   While Mouse Key=0 : Wend : Pen 1
  Clw : Gosub WINDWON
```

This is the bit which sets up the interrupt such that a specific subroutine is called whenever one of the menu options is chosen.

```
 On Menu Gosub PROGRAM,CONVERSION_A,↲
CONVERSION_B,DISPLAY,HARDCOPY
 On Menu On : Return
FOMULALIST:
```

The 'from' and 'to' parts of the conversion wording are held as separate text strings, followed by a numeric value which represents the ration between the two units. Multiplying a number in one unit by the conversion factor will give the result in the other unit.

```
 Data "CMS-","INCHES",0.3937,"INCHES-","CMS",2.54,↲
"METERS-","FEET",3.281,"FEET-","METERS"
 Data 0.3048,"METERS-","YARDS",1.094,↲
"YARDS-","METERS",0.9143998,"KILOMETERS-","MILES"
 Data 0.6213998,"MILES-","KILOMETERS",1.609,↲
"SQ.CMS-","SQ.INCHES",0.155
 Data "SQ.INCHES-","SQ.CMS",6.452,↲
"SQ.METERS-","SQ.FEET",10.76,"SQ.FEET-","SQ.METERS"
 Data 0.09289998,"SQ.METERS-","SQ.YARDS",1.196,↲
"SQ.YARDS-","SQ.METERS",0.8360998
 Data "SQ.KILOMETERS-","SQ.MILES",0.3861,↲
"SQ.MILES-","SQ.KILOMETERS",2.59
 Data "HECTARES-","ACRES",2.471,"ACRES-",↲
"HECTARES",0.4046998,"CUBIC.CMS-","CUBIC.INCHES"
 Data 0.06101998,"CUBIC.INCHES-","CUBIC.CMS",↲
16.39,"CUBIC.METERS-","CUBIC.FEET",35.31
 Data "CUBIC.FEET-","CUBIC.METERS",0.02832,↲
"CUBIC.METERS-","CUBIC.YARDS",1.308
 Data "CUBIC.YARDS-","CUBIC.METERS",0.7645998,↲
"LITRES-","CUBIC.INCHES",61.03
 Data "CUBIC.INCHES-","LITRES",0.01639,↲
"GALLONS-","LITRES",4.546,"LITRES-","GALLONS",0.22
 Data "GRAINS-","GRAMS",0.0648,"GRAMS-","GRAINS",↲
15.43,"OUNCES-","GRAMS",28.35
 Data "GRAMS-","OUNCES",0.03526999,"POUNDS-",↲
"GRAMS",453.6,"GRAMS-","POUNDS",0.002205
 Data "POUNDS-","KILOGRAMS",0.4536,"KILOGRAMS-",↲
"POUNDS",2.205,"TONS-","KILOGRAMS"
 Data 1016,"KILOGRAMS-","TONS",9.841998 E-04
 Data "NO MORE",0
Procedure INFO
 Print "   Multi-Con  V 3.0       By Chris Swift"
 Print
 Print "  Please feel free        82 Peel House"
 Print "  to contact me           Crosley Wood Road"
 Print "  with any ideas or,      BINGLEY"
 Print "  God forbid, any         West Yorkshire"
 Print "  Bugs                    BD16 4QQ"
 Pen 3
 Print : Print Space$(15); : Inverse On : Print " Press ↲
Mouse. "; : Inverse Off
 QW=Mouse Key : Ink 1,0
 While Mouse Key=0 : Wend
 Pen 1 : Clw : On Menu On
End Proc
```



Software for free

Ian Wrigley rounds up the best of the new PD releases. Plus: an in-depth look at Magnetic Pages – a package designed to help you create your own disk magazine

Although I've had a fair number of disks sent in this month, I get the feeling that once again the PD and shareware scene is less than incredibly active at the moment. Much of the stuff that I've been sent is fairly old and – once I've weeded out the demos and games – there ends up being less than there initially seemed. Perhaps Commodore's announcement of the A600 will mean that things pick up again – or, on the other hand, perhaps that announcement will disillusion prospective programmers and turn them to other machines. Only time will tell...

Anyway, on with the show. One disk which won't be reviewed this month is a straight rip-off of two heavy metal songs. Now I'm not averse to metal (actually it's my staple musical diet), but what I am averse to is people just using a sampler to record entire tracks. The disk in question has a very nice opening screen – really well drawn – and contains two tracks by a hardcore thrash band. But all that the 'author' has done is record the music directly on to the Amiga. He even thanks a friend on the loading screen for lending him the record. This is not 'creative sampling', it's piracy. Stop doing it.

Other than that, there are two really great packages this month: *Magnetic Pages*, a complete DIY dis magazine kit, and *Desk Top Video Pack 2*, a collection of a dozen vide programs plus a printed manual fro Anglia. Plus, of course, the pick of the disks that have fallen through m letterbox this month...

REMM AND RAMS

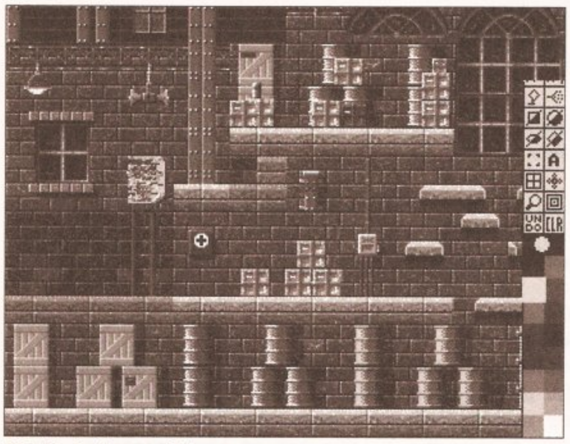
From Deja Vu software

REMM is a map creator, and *RAMS* is Robbie's Amazing Map Scroller. Both programs were written by Robbie Miller, both are licenseware, and both require 1Mb of RAM. They were written in AMOS, and provide a complete environment for creating and viewing maps and background graphics for games. Both a compiled stand-alone version and a version which requires AMOS are provided o the disk, and there's also a separate licenseware disk of graphic screens and maps available.

In fact, the word 'maps' is perhaps a little misleading; really, the program seems intended mainly to create backdrops for games, music or whatever. The program seems t operate by importing IFFs an splitting them up into 'tiles' of user definable size. These tiles can then be placed o the 'map'. An example set of tiles is provided i the form of railwa tracks, and using them it is easy to see that creating a large railway network on-screen would be very easy in *REMM*. However, I'm a little unsure as to exactly who would find the program of real use. Games designers? Perhaps, but I imagine that backdrops to games are usually created in 'normal' art packages.

The programs themselves are well written, although the

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This is just one of the many pre-created maps available on the separate graphics disk for *REMM and RAMS*. As well as this – a 'platforms and ladders' type game background – there are some very intricate spaceship-type backdrops

BEGINNERS START HERE

What is PD?

PD is a general term which many people incorrectly use to refer to all freely-distributable software. In fact, PD (which stands for Public Domain) software is only one branch of this area; the other main one is shareware.

Essentially, PD software may be copied and used by anyone, although some authors place restrictions such as not allowing a PD library to charge more than a certain amount for the disk.

Shareware, on the other hand, should be treated more like commercial software.

Although you are allowed to copy and pass around shareware programs, if you like one then you should pay the requested fee to the author – it's normally only £15 or less, and often entitles you to an upgraded version or a printed manual.

Paying your shareware fees encourages software authors to write more programs – and if they don't, the Amiga scene will be a poorer place.

Can I pass other people copies of PD?

Yes – that's the way that it gets to a wide audience. Just make sure that you have followed the author's requirements for distribution – normally that you don't charge more than a certain amount for the disk, or that you make sure that all the documentation is included on the disk.

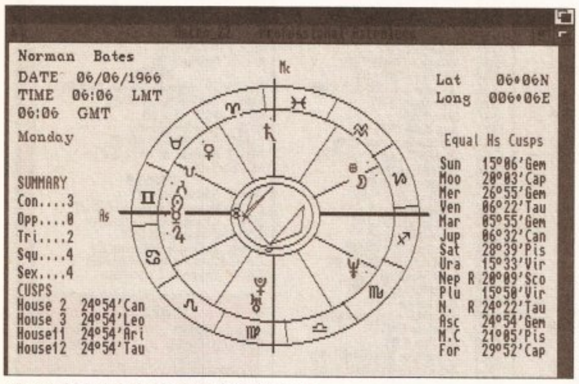
You can also pass on shareware – but not any registered copies of programs. If, when you pay your shareware fee, the author sends you an improved version of the program, then be careful not to give that out. You should only pass on unregistered shareware.

RATING THE PROGRAMS

Just to be awkward, I rate the software that I review in two different ways, depending on what it is. Disk magazines, collections of clip art and the like are given a 'value for money' rating, since you're paying for one thing on the entire disk. Single programs which appear in a collection of others, or programs which I've downloaded from bulletin boards, are given a 'program rating', which reflects how good I think they are, taking into account usability, bug-proofness and so on. Both ratings are out of a maximum possible 10.

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documentation did leave me a little at a loss as to exactly how to use them – be prepared for a fair bit of experimentation. The only real criticism I have with the programs is the fact that they use the standard AMOS file selector. OK, it's not Robbie's fault, but personally I find this requester to be one of the worst about. There's no button to change



Astro is billed as a 'professional astrology program'. Additional modules can be purchased to increase its functionality

drives, and the 'go to parent' icon is a tiny circle – hardly intuitive.

If my (rather woolly) description suggests a program that you would find useful, you're unlikely to be put off by such minor points. And the fact that the main disk contains source-code as well as the program itself is an added bonus. All in all, a nice effort – but some more descriptive information on just what the programs are intended for would have been nice!

Program rating.....................7/10

ASTRO 22

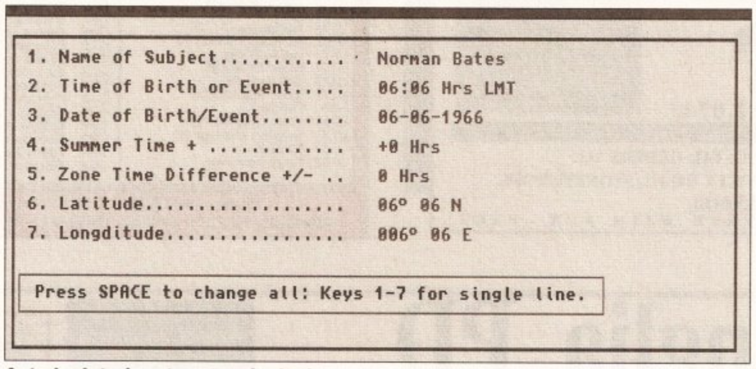
PD Soft disk V685

Astro is a "professional astrology program", supplied on a self-booting disk. It was written by Dave Wilkinson, who sells add-on modules to extend its functionality – a nice idea, which other shareware authors might like to consider.

> **"Any prospective astrologers would be well advised to check out Astro 22."**

Now, I'm not an astrologer myself (surprise, surprise) but certainly *Astro* looks impressive. When it's first launched, it displays the astrological chart for something (or someone) called Agi Ma. This probably shows my ignorance of the subject – all you astrologers out there will be laughing yourselves stupid that I've never heard of this important event (or person). Still, such is life.

Creating a new chart is simple; just select the 'new chart' option from the Options menu and enter the data. The data entry screen isn't as user-friendly as it could be: make a mistake and the screen flashes, whatever you typed disappears and you have to try again. I had trouble with one of the fields – I wasn't typing something in correctly – and I found that the program wouldn't let me quit or exit the data entry screen unless I worked out what the right format was. In the end I re-booted the Amiga and read the documentation files.



***Astro*'s data input screen isn't the most user-friendly in the world, but it does the job adequately**

Actually interpreting the chart that's produced is, of course, the work of the user. But the drudgery and hard work of actually calculating the thing in the first place is handled very quickly (in about three seconds) by *Astro*. Add-on modules, costing between £3 and £10, include different cusps, the ability to save to disk and screendump, calculate midpoints, display graphical aspect wheels, output planetary data to screen and printer and so on.

Astro is a perfect example of a niche market program which performs its chosen task extremely well. Any prospective or current astrologers out there would be well advised to check this one out. Of course, some of us don't believe in the stuff in the first place...

Program rating.....................8/10

WORD POWER V1.3

Word Power is a compiled AMOS shareware program by Steven Rennocks, whose *PowerBase* program was reviewed in the July issue. (Incidentally, version 2.20 of that program is now out; it multitasks, which was the only real criticism I had of version 2.10.)

Word Power is a spelling checker, with a few additional goodies built-in. Reading the doc file doesn't get off to a good start, though – the author says that "if you find any spelling errors in this document then this is because, due to release deadlines, there wasn't time to spell check these instructions." For instructions on how to use a spelling checker? Oh, please!

The program comes on a self-booting disk, which displays a simple menu – F1 to run the program, F2 for instructions and so on. The program and associated files can, of course, be copied to a hard disk and run from there.

F4 produces a file which details where to send the £2 or more shareware fee, and also gives short, lucid reasons for why you should register the program. Nice one, Steven – more programs should explain why registering is important, rather than just saying "register now"



This grab is from an animation called 'Carling Ad', by Neil Cooper of the Woodhouse High School

and not giving any reason. In the case of *Word Power*, there is an added incentive to register: you will receive an 11,500-word dictionary within 48 hours of your shareware fee being received. Again, this service is a nice change from those shareware authors who cash your cheque and don't even send a note of thanks.

When run, the program automatically loads the supplied 2,563-word dictionary and presents the main option screen. Unfortunately *Word Power* doesn't multi-task properly (at least, I couldn't make it), and it isn't compatible with my screen saver.

> **"Word Power is a little surreal in its spelling alternatives."**

The first option I tried was the basic spelling checker. This produces a scrolling copy of your text file on the screen, with unknown words highlighted. Because the basic dictionary supplied (until you register) has so few words, even basics like 'of' and 'do' weren't recognised until they were added to the dictionary. The 'suggest' option for unknown words brings up some... er... interesting alternatives: for instance, when I asked for alternatives to 'display' (yes, it was spelled correctly, but I was experimenting) the program suggested 'brindisi' (what that?) or 'crispies'. Rather surreal, I thought.

The spelling checker works at a reasonable pace along individual lines, but lines scroll up rather slowly, which reduces the overall speed quite considerably. Unknown words are highlighted, and can be ignored, added to the dictionary or suggestions sought. Unfortunately, there's no way to cancel a check until an unknown word is found – so if you change your mind half way through a long, perfectly-spelled document your only option is to re-boot the Amiga.

Strangely, there is no way of typing in a direct replacement for a mis-spelled word: if you don't have the right version in the dictionary – or if the suggestions don't include the correct version – there's no way to change it from within *Word Power*. Something that needs changing in the next version, methinks!

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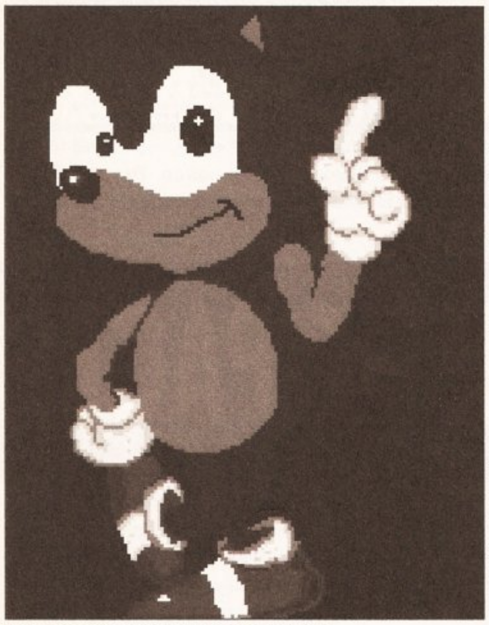
continued from page 130

Other options available include a (very fast) anagram solver, which also gives the *Scrabble* score for the word input, and a crossword solver, where words are entered with a question mark for any unknowns. The program will scan the dictionary and produce any words which match.

Finally, you can save the dictionary under a different name – you might want, for instance, to keep different dictionaries for different foreign languages.

Yet again, Steven has come up with a winner. Despite the sound-effects that accompany every mouse click, and with the exception of the ability to directly enter a correction and the slow scrolling speed, both of which I'm sure will be addressed in the next version of the program, I can thoroughly recommend *Word Power*.

Program rating....................8/10



Sonic is an anim brush created by Miles Kuzmanov, of the Woodhouse High School, and can be found on the *ALF.A* disk

ALF.A ANIMATIONS

Woodhouse High School

David Perks wrote to me with a disk containing animations produced by 9th year pupils (13 to 14 years old) at the Woodhouse High School. David says that "while the animations may not be up to the standard of more experienced animators," he thought I might like to have a look at it.

Well, David, although you're right that none of the samples are going to put Eric Schwartz out of business right now, there's certainly a lot of promise here.

The disk is self-booting and contains 12 different animations, including the results of an art project on computer animation, four anim brushes, and a couple of programs which were used to create some of the images – these were not, of course, written by the pupils.

Apparently all the animations were produced during art lessons at the school or at the after-school Computer Graphics Club. I wish the art teachers at my school had been that innovative!

The disk I was sent is apparently one of several produced by the school, and is available for £1 from David Perks, Woodhouse High School, Highfields Avenue, Tamworth B77 3JB.

TOUCH TYPING TUTOR

NBS disk CLU03

Touch Typing Tutor is a licenseware program written by Eddie Dewhurst in AMOS. Its aim, unsurprisingly, is to teach touch typing. It does this through a series of lessons and exercises, ranging from repeatedly hitting one key to typing whole, 1,000-plus word passages.

As you type, the letters you are required to hit are lit up on the display of the keyboard which appears on the screen. This display also has a colour-coding to show which fingers should operate which keys.

The program has a range of options such as whether to play a sound when a key is hit, whether to force you to use the backspace key when you hit the wrong letter and so on.

There are two different fingering positions supported by *Touch Typing Tutor*, although neither is exactly the one which I learned (from *Mavis Beacon Teaches Typing*, a commercial typing tutor program).

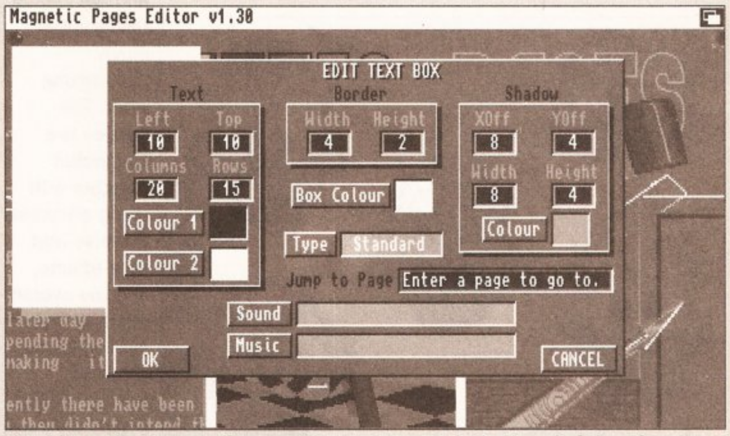
The actual lessons seem to be pretty conventional, if a little old-fashioned – after all, do you really want to spend the first five minutes just hitting the 'f' and 'j' keys? And while things do get better as the lessons progress, I find that it's much harder to hit random combinations of keys than it is to type real words.

The program only provides basic analysis: number of words typed, speed in words per minute, number of errors and a percentage rating for accuracy. There seems to be no record kept that, say, you consistently missed the M key – although perhaps that's too much to ask for.

If you feel the desire to learn how to touch-type (and I thoroughly

CREATE YOUR OWN DISK MAGAZINE!

***Magnetic Pages* arrived on my doorstep twice within about a week: once from PD Soft and once from the author himself, Mark Gladding, who lives in New Zealand. And boy am I glad that I've had a chance to play with it! Mark is the editor of a disk magazine called *Amsmag*, and *Magnetic Pages* is a set of three programs which allows you to create and display your own disk magazine. Text and graphics can be combined on a page, you can set up icons which allow the user to branch to other parts of the magazine and sound and music can be played at any time – specific music or sounds when icons are pressed, or an overall 'theme tune' which continuously plays.**



The *Magnetic Pages* editor enables you to create text and picture boxes very simply. Once a box has been placed on the page, it can be moved and resized simply by clicking and dragging – so the initial dimensions don't really matter too much

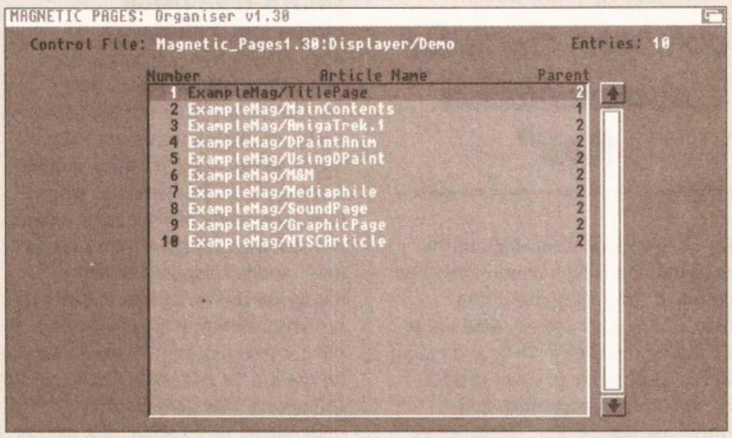
MAGNETIC PAGES 1.30

PD Soft disk V688

Magnetic Pages really is an impressive package. Mark says that there are "a modest number of users scattered around the globe." I'm surprised that the number is only modest – this package, for a shareware fee of just $25, is incredibly easy to use and produces a really professional-looking end product.

The package is made up of three sections: Editor, Organiser and Displayer. The Editor is the program where pages and articles are created. Text and graphics boxes can be created, sounds and music incorporated and actual text and images imported.

There are also the little things like control of the colour palette built in – in fact, nothing is missing at all. It is easy to use, and I'm amazed that Mark hasn't taken it that little bit farther and ➡

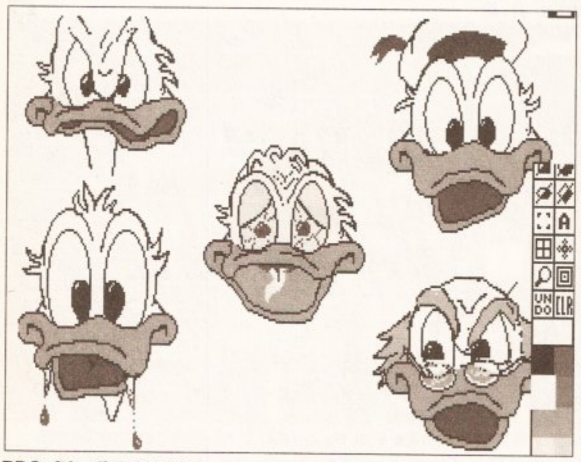


***Magnetic Page*'s Organiser is where all the magazine pages are put together in the correct order. The demonstration version lacks the Save command, so you'll have to register your copy before you can actually create any real magazines**

recommend it: if nothing else, typing while staring out of the window instead of staring at the keyboard is guaranteed to impress your friends, if nothing else) and you were intending to do it by buying one of the many books on the subject, then I would strongly recommend *Touch Typing Tutor* instead. It's likely to be cheaper than a book, and at least your Amiga will be doing something other than acting as a very expensive typewriter.

On the other hand (and I know that I shouldn't do this in a PD column), if you've got the money to spare, go for *Mavis Beacon Teaches Typing* instead: it's more fun, and does the job well.

Program rating....................8/10



PDSoft's disk V689 has some great Disney images, like the one above. Some, on the other hand, are almost unrecognisable as Disney characters

WALT DISNEY CLIP ART

PD Soft disk V689

This disk, although apparently self-booting, managed to crash my Amiga every time, before anything useful had happened when I tried to boot

> **"If an autobooting disk doesn't autoboot, check for documentation files."**

from it. However, checking out the 'read me' file (which doesn't have an icon) and ignoring some of the instructions it contained, lead me to try putting the disk in DF0: and typing 'execute df0:start.ex'. Hey presto, the title screen appeared, and everything worked fine. Which goes to show: if an autobooting disk doesn't autoboot, check for documentation files and try examining the 'startup-sequence' file for clues as to how to make it work from the CLI or Workbench.

The disk was put together by Victor Issa, and takes the form of a large number of drawings of Disney characters, linked together with music from Disney films.

The music isn't digitised, and is played back as two-channel sound using some fairly naff sounds. The likeness of the illustrations to the Disney originals ranges from excellent (Donald Duck and Pluto particularly good) to dreadful (if you can recognise Mickey Mouse from some of the pictures that are displayed you've got a rather better eye than I have), but even when the characters don't resemble the originals, the illustrations are good and are clearly the result of much painstaking work. The images are connected together with some attractive dissolve and fade effects, and the overall result is four or five minutes of pleasant enough viewing, especially if you happen to be a cartoon fan.

It's a shame that I had trouble getting the disk to work in the first place – if I'd been a novice I probably wouldn't have managed at all, since the instructions are hidden in an invisible readme file, and are slightly wrong anyway. (And the whole thing is hidden in a locked filing cabinet with 'beware of the leopard' written on the outside...) And even when it did work, pleasant though it is, one or two viewings and listenings are all that you're likely to be able to take.

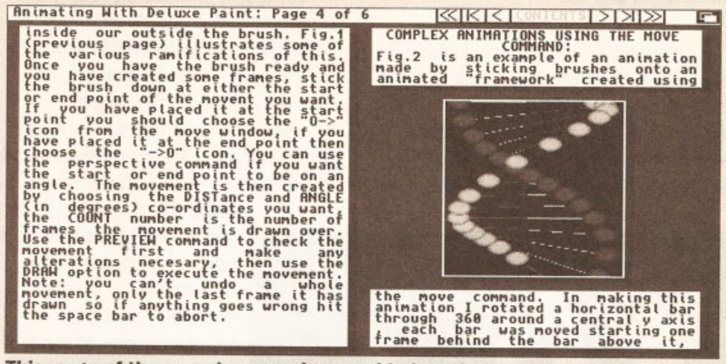
Value for money 5/10

WOTS-ITS-NAME

Official AMOS PD library

Anne Tucker has just taken over running the official AMOS Public Domain library from Sandra Sharkey – who continues to run the Déja Vu licenseware – and she has sent me a few games and demos to review. Now, normally I don't look at either of those two categories (remember kids, *Amiga Shopper* doesn't recognise the existence of games!), but *Wots-its-name* (sic) is more of an educational program (honest). Based on the old TV and radio standard, *20 Questions*, this game (sorry, educational experience) is a kind of general knowledge quiz with a board-game slant. There are 20 clues to

continued on page 135



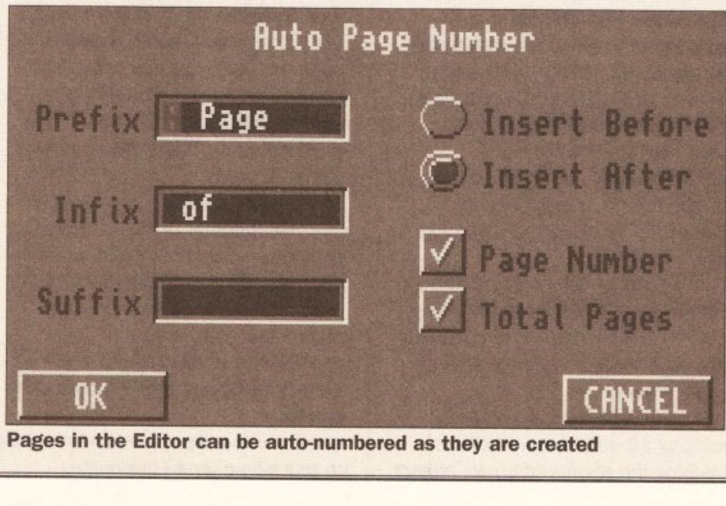
This page of the sample magazine provided on the disk shows mixed text and graphics. Clicking on the picture displays an animation. The set of controls at the top right of the image allows the user to navigate around the magazine easily

MAGNETIC PAGES ...continued 1

turned it into a fully-fledged DTP program. It would certainly rival many of the others out there if he did. This is one of the most intuitive, easy-to-use programs that I've found on the Amiga – and I would even say that it gives many Mac applications a run for their money. For instance, when creating a new text or graphics box, a standard requester appears asking for things like the box's dimensions. But once it's on the page, a simple menu selection and you can resize or move the box with no trouble at all. This means that those who have a deep desire to make sure that everything aligns perfectly will be content – they can type numbers into boxes – while those who prefer to design by eye, moving things around until they achieve the look that they were after can do that, too. Brilliant.

Once you've designed and saved all your articles, you move on to the Organiser. Here, you define the relationship between all the different articles – that is, which is the 'parent' for each article. This is the page that the reader will be taken to if they hit the 'contents' button when reading the magazine. The article names take the form of an AmigaDOS pathname, so you'll have to save your pages on to a disk in the right place before you use the Organiser. The demonstration version of the program supplied doesn't actually allow you to save the Organiser file, so until you've registered the package you won't actually be able to create full magazines. But at least you will be able to see how everything works.

Finally, the Displayer. This is the part of the package that you will ship with every disk magazine that you create. It provides the viewer with a number of features: the ability to navigate through the magazine (of course!), to turn sound on and off, perform a search for specific text, save a page as an IFF or save text as plain ASCII, and print out a page. The

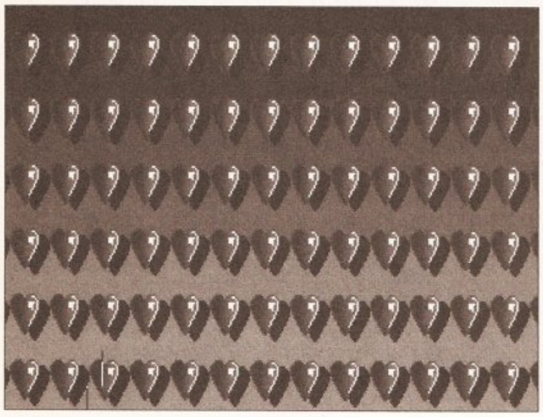


Pages in the Editor can be auto-numbered as they are created

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each person, place, thing or year, and the more clues you and your opponents take to work out what the answer is, the less your counter is advanced around the board. The winner is, of course, the first person to get their counter all the way around.

As with all programs such as this, one of the problems is that you have to be perfectly accurate when you enter your answers. For instance, 'Everest' was judged wrong, because the actual answer is 'Mount Everest'. Likewise 'Arthur' and 'King Arthur'. It would be nice to see programs which require a textual answer to have a little artificial intelligence or pattern matching built in to avoid this sort of annoyance.



***TV graphics* contains 10 pieces of clip art which could be used in a video environment. If you were completely tasteless, that is...**

The program contains a range of sampled sounds, including the famous *Lemmings* 'Oh no!', and is actually a pretty good version of the parlour game (does anyone still have parlours these days?).

All in all, if you've got any inquisitive kids in your household, this should keep them quiet for an hour or so – and for that alone it's certainly worth getting your hands on.

Program rating....................8/10

DESK TOP VIDEO PACK 2

Anglia PD

Anglia Public Domain produces a number of 'packages' of targetted PD, aimed at putting as many relevant PD programs on to a set of disks as possible.

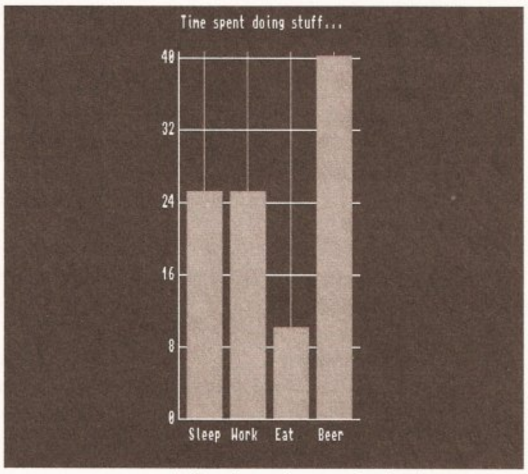
The company has also taken the unusual step of producing printed manuals for some of the packs. This, according to owner Mark Harvey, is because "our experience tells us that a major problem with PD is that it can be difficult for the user to get into. We have experimented with printed manuals in the past and found them to be surprisingly successful, sheer ease of use being the main reason.

"The customer can begin (using the programs) immediately, no printing involved and it's worth mentioning that not all Amiga owners have printers."

Well said, Mark. I happen to find it extremely frustrating to have my printer painstakingly output 30 or 40 pages of manual for reference whenever I'm reviewing a large PD program – and it's not cheap, either!

The Anglia package which I was sent is *Desk Top Video 2* – this is a collection of four disks for just £3.96, which works out at the standard Anglia price of 99p per disk.

The printed manual costs a further £2.99 – and it's well worth the extra. There are 50 pages of small-print text, starting with an introduction to the pack as a whole and moving on to the 'readme' files for each of the main programs. And main programs galore are provided on the four disks: 12 are detailed in the manual, and some of these are collections of three or four small utilities. The 12 in the collection are:

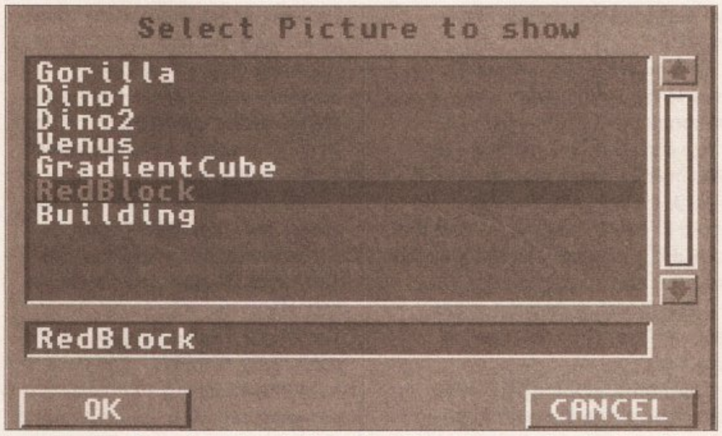


***A-Graph* produces pie charts, histograms and the like. It's not the easiest program in the world to use, though...**

- *sMovie* – a general purpose video titler.
- *QED* – a text editor, for creating titles and the like.
- *Virus Checker 6.04* – for peace of mind.

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MAGNETIC PAGES ...continued 2



Once pictures have been loaded into the Editor, they can be displayed before placing them in picture boxes on-screen

user can jump to other pages either using the on-screen navigation controls, via a menu or by clicking on icons which you've designated as being navigation icons. It's all very easy to use, and your readers shouldn't have any problems getting around your publication. Because the actual displayer is a tool, the user doesn't ever have to do anything other than double-click on the icon for your magazine.

To demonstrate the power of *Magnetic Pages*, a sample magazine is supplied. This includes text, graphics, sound effects and animations, all of which are articles taken from Mark's *Amsmag* magazine. If you're not convinced after leafing through this, you never will be. Personally, I was stunned at how good and easy to use the whole thing is.

CONCLUSION

The *Magnetic Pages* package is terrific. I'm amazed – and ashamed – that I haven't seen it before now, because that means that I haven't been able to recommend it until now. And recommend it I do – if you have any thoughts of creating a disk magazine, I suggest without reservation that you get hold of a copy of this package without delay. If you're already convinced and you want to get hold of the full version immediately, send US$25 – cash or a cheque drawn on a New Zealand bank only – to Mark Gladding at 66 Churchill Road, Murrays Bay, Auckland 1310, New Zealand.

Program rating..................10/10

MAIN FEATURES

- Eight or 16-colour screens, on which text and graphics can be mixed.
- An all-graphics page can be defined, where any IFF picture in any screen mode such as HAM can be displayed.
- The reader can branch to different articles in the magazine by clicking on icons.
- Digitised sound and *MED* or SoundTracker music is supported. This can be played when the reader first enters a page, or when an icon is clicked.
- Many different text styles such as bold, italics, underline and so on are supported, as is coloured text.
- Page colour, box colour, shadows and borders are user definable.
- Boxes can contain several frames of animation.
- *PowerPacker* is supported, meaning that articles can be compressed so more can be fitted on the disk.
- Articles can be printed, saved as text or saved as IFF files by the reader.
- Text searches can be performed by the reader. The search can be performed on the current page, current article, group of articles or the whole magazine.
- PAL and NTSC standards are both catered for.
- Workbench 2.0 is supported.

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• *ShoWiz* – a slideshow program, which can also incorporate text and sound.
• *SportsText* – a video titler which quickly enables you to display 100 or so different pre-defined titles, which is particularly useful for on-the-fly titling of sports events and suchlike.
• *TV Graphics* – clip art which is likely to be useful in the video environment.
• *The Introducer* – used to create scrolling demos. Just give it an IFF picture, a sound file if you want sound to be played, and the text that you want to appear, and the program does the rest.
• *VTOT* – which stands for Video Tools on Tap. It's a test pattern generator.
• *ShadowMaker* – a font shadow generator, which converts fonts into colour fonts with antialiasing and shadows built in.
• *InTime* – overlays a rough time code on to videotape, although it only counts in seconds, and not frames.
• *Video Librarian* – a database for keeping track of your video collection.
• *A-Graph* – draws bar, line area and pie charts.

The guys at Anglia have obviously gone to a great deal of trouble in collecting all these programs together, and I have to hand it to them – they've certainly found more video-ish programs than I've come across until now!

All the programs seem pretty decent from the descriptions, although I must come clean and admit that I haven't tried them all. Still, if you use your Amiga for any sort of video work, I'd say that you can't really do without this collection.

Congratulations to Anglia on a well-executed idea – perhaps you'd like to send me some of your other packs for review, guys?

Value for money..................10/10

WHERE TO GET IT

There are two main ways to get hold of Amiga PD and shareware: from a bulletin board or from a PD library.

The advantage of using a bulletin board is that often the latest software is uploaded as soon as it's available. On the down side, you need a modem to connect, and you'll have to pay phone charges (and sometimes a connection fee to the bulletin board as well).

There are a growing number of bulletin boards with a wide range of Amiga software available for download. Check out 01-for Amiga (071 377 1358) and the Cheam Amiga Bulletin Board (081 644 8714). Another good option is joining CIX (the Compulink Information eXchange), which not only has Amiga software but also contains conference and file areas on a wide range of subjects, from politics to scuba diving, biking to Science Fiction. Many of the *Amiga Shopper* writers have accounts on CIX, so you can get first-hand advice on your problems, too. For more details, call CIX on 081 390 8446 (voice) or 081 390 1255 (modem).

If you don't want to use a bulletin board, the other way to get PD software is from a PD house. Many advertise in *Amiga Shopper*, and you'll find a comprehensive list of names and addresses at the end of this article. Expect to pay between 99p and about £2.50 per disk – there's often a discount if you buy in bulk, too.

UK PD HOUSES

3 Amigos
16 Marsett Way
Leeds LS14 2DN
☎ 0532 733043

Amiganuts United
169 Dale Valley Road
Hollybrook
Southampton SQ1 6QX

AMOS PD Library (also Deja Vu)
25 Park Road
Wigan WN6 7AA
☎ 0942 495261

Anglia PDL
115 Ranelagh
Felixtowe
Suffolk IP11 7HU
☎ 0394 283494

Blitterchips
Cliffe House
Primrose Street
Keighley BD21 4NN
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Bristol BS4 5LU
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Silica Systems are pleased to present the GVP range of peripherals. GVP are the world's largest third party manufacturer of peripherals for the Amiga range and have a reputation for high specification, quality products. The company was founded only four years ago by a man who knows about the Amiga, Commodore's ex-Vice President of Technology. He, along with a team of Amiga experts including other ex-Commodore staff, understand the add-on requirements of Amiga owners better than anyone. Not only do GVP provide peripherals that Amiga owners want, they also offer peace of mind, with a 2 year warranty on the products they manufacture. So, if you are looking for the very best in peripherals for your Amiga computer, look no further than GVP.

GVP's HD8+ hard drive and A530 hard drive with 40MHz accelerator, represent the highest quality Amiga 500 peripherals, at very affordable prices. Each incorporates a Quantum disk drive, RAM expansion capability, custom VLSI chip and FAAASTROM SCSI driver, for unbeatable performance.

The HD8+ hard drive offers up to 8Mb of standard internal Fast RAM expansion and the A530 Combo, up to 8Mb of 32-bit wide fast RAM expansion. Both feature a SCSI controller, which supports up to 6 additional devices, and an Autoboot/Game cut-off switch. Both are available in 52, 120 and 240Mb hard drive versions.

In addition, the A530 Combo zooms the Amiga forward with an 030 accelerator, running at a blistering 40MHz. This enables your Amiga 500 to run at an incredible 12.1 MIPS, faster than an Amiga 3000! No other product in the world combines all the features found in the A530 Combo! A plug-in PC emulator option, shown below, is available for both the HD8+ and A530 Combo.



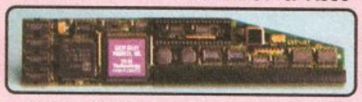
	HD8+	A530
HARD DRIVE		
QUANTUM SCSI HARD DRIVE 52, 120 & 240Mb VERSIONS	•	•
ULTRA FAST 11ms ACCESS	•	•
TRANSFER RATE UP TO 2,100K/sec* (*THE RATE OF THE 240Mb HD)	•	•
ACCELERATOR		
40MHz 68030EC CPU		•
OPTIONAL 68882 MATHS CO-PROCESSOR		•
RUNS AT 12.1 MIPS (FASTER THAN AN A3000!)		•
HARDWARE SUPPORT TO MAP KICKSTART INTO 32-bit WIDE FAST RAM FOR FASTER OPERATION (LIKE CACHING THE OPERATING SYSTEM)		•
RAM BOARD		
UP TO 8MB OF 8 OR 9-bit FAST RAM (8 OR 9-bit WIDE SIMMS - 120ns OR QUICKER)	•	
UP TO 8Mb OF 32-bit WIDE FAST RAM (32-bit WIDE SIMMs - 60ns)		•
1Mb POPULATED		•
OTHER FEATURES		
HDD/ACCELERATOR 'CUT-OFF' SWITCH FOR 100% GAME COMPATIBILITY	•	•
SCSI CONTROLLER FOR UP TO 6 ADDITIONAL DEVICES	•	•
VLSI CUSTOM CHIP	•	•
FAAAST ROM SCSI DRIVER	•	•
IDENTICAL COLOUR & STYLING TO THE A500	•	•
BUILT-IN VENTILATION FAN TO PREVENT THE UNIT FROM OVERHEATING	•	•
DEDICATED POWER SUPPLY	•	•
'MINI-SLOT' FOR FUTURE EXPANSIONS (E.G. PC EMULATOR)	•	•
REMOVABLE MEDIA SUPPORT	•	•
DIRECT MEMORY ACCESS (DMA) STYLE FOR ULTIMATE PERFORMANCE	•	•
EASY-TO-USE SOFTWARE	•	•
2 YEAR WARRANTY	•	•



HD8+

PC EMULATOR

PLUG-IN OPTION FOR HD8+ & A530



- 16MHz 80286 processor
- 287 Maths Co-Processor socket
- 512K of PC RAM plus the use of Amiga RAM
- Supports Hercules, CGA, EGA/VGA (monochrome) and T3100 video modes
- Runs MS-DOS (3.2 and upwards) plus thousands of other PC programs

This powerful 286 emulator module simply plugs into the "mini-slot" of the GVP HD8+ or A530 (without invalidating the warranty). It has full access to the Amiga's resources and allows you to run PC and Amiga programs at the same time, giving you two computers in one.

£249 Ref: EMU 0500

WHAT THE PRESS SAY:

'Superb build, excellent aesthetics and blinding speed make this the best A500 hard drive' ... AMIGA SHOPPER

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'Still the best hard drive' ... 92% AMIGA FORMAT

PLUG IN HARD DRIVES & ACCELERATORS

PRICES FROM:

£379

MODEL	52Mb HD	120Mb HD	240Mb HD
HARD DRIVE HD8+	£379 Ref: HAR 0852	£499 Ref: HAR 0920	£779 Ref: HAR 0942
A530 COMBO HARD DRIVE & ACCELERATOR	£749 Ref: HAR 0962	£869 Ref: HAR 0974	£1149 Ref: HAR 0986

FOR ALL AMIGAS

AMIGA 1500 + 2000 + 3000 PRODUCTS



SOUND SAMPLER

- *8-bit stereo sampler*
- *Plugs into parallel port*
- *MIDI support for song input*
- *Extensive editing features*

For the semi-professional and audio hobbyist a high quality 8-bit stereo sound sampler that connects into the parallel port on any Amiga 500, 600, 1500, 2000 or 3000 computer. Combined with one of the fastest, most powerful and easy-to-use sound and music editing programs available. Includes 4-track soundtracker file compatible sequencer.

MUS 2500 **£59.95**

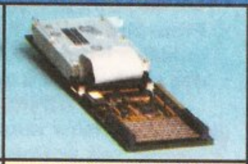


ACCELERATORS

- *68030EC/68030EC/68030 processor*
- *25/40/50MHz clock speeds*
- *68882 Maths co-processor*
- *Expands to 13/16/16Mb 32-bit RAM*
- *32-bit SCSI controller on board*

Fast 68030/68030EC accelerators with memory upgrade and SCSI interface boards. Each comes complete with a 68882 maths co-processor and RAM upgrade as standard. Kit available, to mount 1" Hard Drive on any G-Force 030 Board, GVA 4251, £39.95

25MHz/1Mb	Ref: UPG 0110	£599
40MHz/4Mb	Ref: UPG 0430	£999
50MHz/4Mb	Ref: UPG 0533	£1399

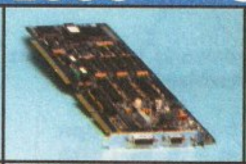


HARD CARDS

- *Factory installed Hard Drives*
- *52, 120, 240 & 420Mb options*
- *On-board 8Mb memory sockets*
- *Add up to 6 SCSI devices*
- *Easy to install SIMMS*

The Impact II HC8 hard cards are the equivalent of the HD8+ hard drive, but for the 1500 and 2000 models. Not only are they some of the fastest hard drives available, but they also incorporate an unpopulated 8Mb RAM expansion board.

52Mb	Ref: HAR 1352	£299
120Mb	Ref: HAR 1420	£449
240Mb	Ref: HAR 1540	£699
420Mb	Ref: HAR 1542	£1299



VIDEO ENHANCER

- *768 x 580 PAL Resolution*
- *Supports comp video, S-VHS & RGB*
- *Broadcast quality genlock*
- *Now with RGB splitter*

Impact Vision 24 is the latest 24-bit Professional Video Adaptor. It features 16 million colours on screen at once, built-in genlock, flicker fixer, frame buffer, frame grabber and digital keyer. Supplied with Caligari-IV24 3D modelling and rendering software, Scala IV24 video titling software, plus Macro Paint 24-bit paint package. A1500/2000 requires additional adaptor, GVA 5224, £49.95

IV-24 - VIU SPLITTER	Ref: VID 7024	£1699
IV-24 - VIU TRANSCODER	Ref: VID 7124	£2099



RAM BOARDS

- *Up to 8Mb of FAST RAM*
- *Upgrade in 2Mb increments*
- *Supports industry standard RAM chips*
- *Diagnostic software included*
- *Fully auto-configuring*

The RAM-8 offers an easy way to upgrade your 1500 or 2000 in 2Mb increments up to 8Mb. The RAM 8 is fully auto-configuring and is supplied with peace-of-mind diagnostic software. 6Mb configuration supported for bridgeboard owners

0Mb populated	RAM 2800	£99
2Mb populated	RAM 2802	£169



REMOVABLE MEDIA

- *Syquest 44 or 88Mb removable media*
- *20ms access time*
- *GVP HC8 Controller option extra*
- *External case available for A500/3000*

GVP offer Syquest drives with or without their HC8 controller. They are available in 44Mb and 88Mb capacities and have a 20ms access time. Each drive comes with a removable cartridge.

44Mb (Bare Drive)	Ref: HAR 1554	£449
44Mb (+HC8)	Ref: HAR 1568	£549
88Mb (Bare Drive)	Ref: HAR 1678	£599
88Mb (+HC8)	Ref: HAR 1691	£699

ALL PRICES INCLUDE VAT - DELIVERY IS FREE OF CHARGE IN THE UK MAINLAND

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Before you decide when to buy your new Amiga products, we suggest you think very carefully about WHERE you buy them. Consider what it will be like a few months after you have made your purchase, when you may require additional peripherals and software, or help and advice. And, will the company you buy from contact you with details of new products? At Silica Systems, we ensure that you will have nothing to worry about. We have been established for over 12 years and, with our unrivalled experience and expertise, we can now claim to meet our customers' requirements with an understanding which is second to none. But don't just take our word for it. Complete and return the coupon now for our latest FREE literature and begin to experience the "Silica Systems Service".

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Company Name (if applicable): ....

Which computer(s), if any, do you own? 68D

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- **SAVE THE ENTIRE PROGRAM IN MEMORY TO DISK**
Special compacting techniques enable up to 3 programs to fit on one disk. Now saves directly to disk as Amiga Dos - reloads independently of the cartridge - even transfer to hard drive! Works with up to 2 Megs of Ram - even 1 Meg Chip Mem (Fatter Agnus).

NEW **SUPER POWERFUL TRAINER MODE** - now with DEEP trainer. Even better than before - allows you to generate more or even infinite lives, fuel, ammo. Perfect as a Trainer Mode to get you past that "impossible" level. Easy to use.

- **IMPROVED SPRITE EDITOR**
The full Sprite Editor allows you to view/modify the whole sprite set including any "attached" sprites. PLUS A RANGE OF IMPROVED FEATURES.

- **VIRUS DETECTION**
Comprehensive virus detection and removal features to protect your software investment. Works with all presently known viruses.

NEW **BURST NIBBLER.**
Now this super disk copier program is built into Action Replay Mk III. Just imagine a superfast, efficient disk copier program at the press of a key - no more waiting.

- **SAVE PICTURES AND MUSIC TO DISK**
Pictures and sound samples can be saved to disk. Files are saved directly in IFF format suitable for use with all the major graphic and music packages. Samples are displayed as screen waveform.

NEW **PAL or NTSC MODES SELECTABLE** -
Useful for removing ugly borders when using NTSC software. (Works only with newer Agnus chips).

- **SLOW MOTION MODE**
Now you can slow down the action to your own pace. Easily adjustable from full speed to 20% speed. Ideal to help you through the tricky parts!

NEW **MANY MORE INSTANT CLI COMMANDS** -
like Rename, Relabel, Copy, etc.

- **RESTART THE PROGRAM**
Simply press any key and the program will continue where you left off.

- **FULL STATUS REPORTING**
At the press of a key now you can view the Machine Status, including Fast Ram, Chip Ram, RamDisk, Drive Status, etc.

- **POWERFUL PICTURE EDITOR**
Now you can manipulate and search for screens throughout memory. Over 50 commands to edit the picture plus unique on screen status "overlay" shows all the information you could ever need to work on screens. No other product comes close to offering such dynamic screen handling of frozen programs!!

NEW **JOYSTICK HANDLER** -
allows the user to select Joystick instead of Keypresses - very useful for many keyboard programs.

- **MUSIC SOUND TRACKER**
With Sound Tracker you can find the complete music in programs, demos,etc. and save them to disk. Saves in format suitable for most track player programs. Works with loads of programs!!

- **AUTOFIRE MANAGER**
From the Action Replay III preference screen you can now set up autofire from 0 to 100%. Just imagine continuous fire power? Joystick 1 and 2 are set separately for that extra advantage!

NEW **IMPROVED RAM EXPANSION SUPPORT.**
Now many more external Ram Expansions will work with all Action Replay III commands.

- **DOS COMMANDS**
Now you have a selection of DOS commands available at all times - DIR, FORMAT, COPY, DEVICE, etc.

NEW **FILE REQUESTOR** -
if you enter a command without a filename, then a file requestor is displayed.

- **DISK COPY**
Disk Copy at the press of a button - faster than Dos Copy. No need to load Workbench - available at all times.

- **BOOT SELECTOR**
Either DF0 or DF1 can be selected as the boot drive when working with Amiga Dos disks. Very useful to be able to boot from your external drive.

NEW **PLUS IMPROVED DEBUGGER COMMANDS** -
including Mem Watch Points and Trace.

- **DISKCODER**
With the new "Diskcoder" option you can now 'tag' your disks with a unique code that will prevent the disk from being loaded by anyone else. 'Tagged" disks will only reload when you enter the code. Very useful for security.

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NOW EVEN BETTER!!

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FOR 1500/2000 VERSION £69.99

E 256K OPERATING SYSTEM
WHOLE NEW RANGE OF
FEATURES

AMIGA ACTION REPLAY SIMPLY PLUGS INTO THE EXPANSION PORT OF YOUR AMIGA AND GIVES YOU THE POWER TO FREEZE MOST ANY PROGRAM



NEW
- **SET MAP** - allows you to Load/Save/Edit a Keymap.
- **PREFERENCES** Action Replay III now has screen colour preferences with menu setup. Customise your screens to suit your taste. Very simple to use.

NEW
- **IMPROVED PRINTER SUPPORT** - including compressed/small character command.
- **DISK MONITOR** Invaluable disk monitor - displays disk information in easy to understand format. Full modify/save options.



PLUS A MACHINE CODE FREEZER MONITOR WITH EVEN MORE POWER!!

MORE FEATURES INCLUDING 80 COLUMN DISPLAY AND 2 WAY SCROLLING...

- Full M68000 Assembler/Disassembler
- Full screen editor
- Load/Save block
- Write String to memory
- Jump to specific address
- Show Ram as text
- Show frozen picture
- Play resident sample
- Show and edit all CPU registers and flag
- Calculator
- Help command
- Full search feature
- Unique Custom Chip Editor allows you to see and modify all chip registers - even write only registers!
- Notepad
- Disk handling - show actual track, Disk Sync. pattern etc.
- Dynamic Breakpoint handling
- Show memory as HEX, ASCII, Assembler, Decimal
- Copper Assemble/Disassemble - now with suffix names

REMEMBER AT ALL TIMES YOU ARE INTERROGATING THE PROGRAM IN IT'S "FROZEN" STATE WITH ALL MEMORY AND REGISTERS INTACT - INVALUABLE FOR DE-BUGGING OR JUST THE INQUISITIVE!





PRODUCT LOCATOR

SOFTWARE • SOFTWARE • SOFTWARE • SOFTWARE • SOFTWARE • SOFTWARE • SOFTWARE • SOFTWARE

Welcome to the *Amiga Shopper* Buyer's Guide, your regular guide to what's hot and what's not in the Amiga market place. It's designed as a simple-to-use yet comprehensive guide which will help you to make the right buying decisions. It may not include each and every product ever produced for the Amiga (that would take up virtually the whole of *Amiga Shopper*!), but rest assured that all the major brands are here.

The Buyer's Guide will run each and every month and as new products are released and others discontinued, we'll be updating it accordingly. This month we bring you what is possibly the most comprehensive guide to software for the Amiga owner.

PAINT PROGRAMS

Product	Supplier	Price	Screen Modes	Max Colours	Overscan	Animation	Rating	Issue
MyPaint	HB Marketing	£20	L	12	No	No	***	2
The Graphics Studio	Accolade	£50	L/M	32	No	No	***	2
Deluxe Paint 3	Electronic Arts	£70	L/LI/M/H	64	Yes	Yes	*****	2
Deluxe Paint 4	Electronic Arts	£90	L/LI/M/H	4096	Yes	Yes	*****	10
Deluxe PhotoLab	Electronic Arts	£130	L/LI/M/H	4096	Yes	No	***	2
DigiPaint 3	Silica Systems	£80	L/LI	4096	Yes	No	****	2
Photon Paint 2	MicroIllusions	£90	L/LI	4096	Yes	Yes	*****	2
SpectraColour	HB Marketing	£60	L/LI	4096	Yes	Yes	***	5

L-Low Res, LI-Low Res Interlaced, M-Medium, H-High Res

ANIMATION SOFTWARE

Product	Supplier	Price	ANIM Compat	Onion Skin	X-Sheet	Sound	Rating	Issue
Disney Animation Studio	Silica	£80	Yes	Yes	Yes	Yes	****	1
Fantavision	HB Marketing	£50	No	No	No	Yes	****	14
MovieSetter	Silica	£80	No	No	No	Yes	****	14
Take-2	Rombo	£95	No	No	Yes	Yes	****	14

SOLID MODELLING/RAY TRACING

Product	Supplier	Price	Ray Tracing	24-bit	Animation	Bump Maps	Textures	Rating	Issue
Real 3D 1.4	Alternative Image	£120	Yes	Yes	Yes	Yes	Yes	*****	4,7
Imagine	Silica	£235	Yes	Yes	Yes	No	Yes	*****	4,7
3D professional	Marcam	£260	Yes	Yes	Yes	No	Yes	***	7
Draw 4D	Surface UK	£150	No	No	Yes	No	Yes	***	7
Sculpt 4D	Alternative Image	£400	Yes	Yes	Yes	No	Yes	*****	7
Imagine 2	Computech	£270	Yes	Yes	Yes	Yes	Yes	****	14
RayDance	Radiance	£100	Yes	Yes	No	Yes	Yes	***	14

MISC GRAPHICS

Product	Supplier	Price	Type	Rating	Issue
VistaPro	HB Marketing	£100	Fractal Landscapes	*****	7
Genesis	MicroIllusions	£50	Fractal Landscapes	****	11

IMAGE PROCESSORS

Product	Supplier	Price	24-bit	Max Colours	File Formats	Composition	Colour Control	Rating	Issue
Art Department	Silica	£100	Yes	16.7 m	Many	No	Yes	****	-
Art Department Pro	Silica	£200	Yes	16.7 m	Many	Yes	Yes	*****	10
PIXmate	Precision	£70	No	4096	IFF, Neo	No	Yes	****	-
Butcher 2	HB Marketing	£50	No	4096	IFF	No	Yes	***	-

PAGE LAYOUT SYSTEMS

Product	Supplier	Price	Outline Fonts	Pantone	Postscript	24-bit Col	Colour Sep	Rating	Issue
PageStream 2.2	Silica	£200	Yes	No	Yes	Yes	Yes	***	2,3
ProPage 2.1	Silica	£250	Yes	Yes	Yes	Yes	Yes	*****	1,17
Saxon Publisher	Surface UK	£250	Yes	No	Yes	Yes	Yes	***	17
PageSetter 2	Silica	£100	Yes	No	No	No	No	***	-
Shakespeare	Cloudhall	£100	No	No	Yes	No	Yes	***	-
CityDesk	Precision	£130	No	No	Yes	No	No	**	-
ProPage 3.0	Silica	£250	Yes	Yes	Yes	Yes	Yes	*****	17

STRUCTURED DRAWING PROGRAMS

Product	Supplier	Price	Bezier Curves	Postscript	Outline Fonts	EPS compat	Rating	Issue
ProDraw 2.1	Silica	£132	Yes	Yes	Yes	Yes	*****	-
DesignWorks	Silica	£100	Yes	Yes	Yes	No	**	-
ProDraw 3.0	Silica	£132	Yes	Yes	Yes	Yes	****	-
Expert Draw	HB Marketing	£70	Yes	Yes	Yes	Yes	***	14

CAD PACKAGES

Product	Supplier	Price	DXF Compat	No. Of layers	Vector Fonts	PostScript	Rating	Issue
DynaCADD	ExpressWorks	£650	Yes	256	Yes	Yes	****	3

PRODUCT LOCATOR

PRODUCT LOCATOR

X-CAD 2000	Digital Multimedia	£129	Yes	255	Yes	With util included	****	-
X-CAD 3000	Digital MultiMedia	£300	Yes	255	Yes	With util included	*****	-
UltraDesign	Marcam	£200	Yes	128	Yes	Yes	***	-

WORD PROCESSORS

Product	Supplier	Price	Spell Checker	Thesaurus	Picture Import	Rating	Issue
Scribble!	HB Marketing	£30	Yes	No	No	***	6,9
Transwrite	HB Marketing	£40	Yes	No	No	***	6,9
Pen Pal	Harwoods	£80	Yes	No	Yes	****	6,9
Kind Words 2	HB Marketing	£50	Yes	No	Yes	**	6,9
Protext 5.5	Arnor	£150	Yes	Yes	No	*****	6,9
Wordworth	Digita	£130	Yes	No	Yes	****	4,6,9
Excellence 2	HB Marketing	£130	Yes	Yes	Yes	****	6,9
ProWrite 3.2	Silica	£143	Yes	Yes	Yes	***	12
Word Perfect	Sentinel	£230	Yes	Yes	No	***	-
Final Copy	Gordon Harwood	£TBA	Yes	Yes	Yes	****	15

DATABASES

Product	Supplier	Price	Type	Programmable	dBASE Compatible?	Rating	Issue
Infofile	HB Marketing	£50	Card Index	No	No	***	9
ProData 1.2	Arnor	£100	Card Index	No	Yes	****	9
SuperBase	Precision	£30	Relational	No	Yes	****	9
SuperBase 2	Precision	£100	Relational	No	Yes	****	9,12
SuperBase Pro 4	Precision	£400	Relational	Yes	Yes	*****	4,9
Organize 2	HB Marketing	£62	Relational	No	Yes	***	-

SPREADSHEETS

Product	Supplier	Price	Lotus Compatibility	Graphs	Rating	Issue
SuperPlan	Precision	£80	Yes	Yes	***	9
Analyze!	Precision	£50	Yes	Yes	***	9
Maxiplan 500	HB Marketing	£80	Yes	Yes	***	9
ProCalc	Silica	£150	Yes	Yes	*****	-
Advantage	Silica	£100	Yes	Yes	****	1,9
K-Spread 3	Kuma	£70	Yes	Yes	***	9
K-Spread 4	Kuma	£100	Yes	Yes	****	9
DGCalc	Digita	£40	No	No	**	-
Analyze 2	HB Marketing	£50	Yes	Yes	***	-

MULTIMEDIA

Product	Supplier	Price	Interactive	External Drivers	ARexx	Rating	Issue
Presentation Master	HB Marketing	£350	Yes	No	No	****	9
HyperBook	Silica	£100	Yes	No	Yes	****	6
AmigaVision	Commodore	£80	Yes	Yes	Yes	****	-
CanDo 1.5	Checkmate Digital	£130	Yes	No	Yes	*****	-
Viva!	MicroDeal	£200	Yes	Yes	No	**	-

VIDEO TITLERS

Product	Supplier	Price	Overscan	Transitions	Amiga Fonts	Horiz Crawl	Rating	Issue
Broadcast Titler 2	HB Marketing	£234	Yes	Yes	No	Yes	****	2
Scala 1.1	Silica	£250	Yes	Yes	Yes	No	*****	2
Scala 500	Silica	£100	Yes	Yes	Yes	No	****	-
Alternative Scroller	Alternative Image	£50	Yes	No	No	Yes	***	-
Home Titler	HB Marketing	£40	Yes	No	No	Yes	***	9
ProTitler	HB Marketing	£100	Yes	Yes	Yes	Yes	***	9
Video Caption Designer	Maze	£200	Yes	No	Yes	Yes	***	3
Video Ease	Interactive Tchnlgy	£40	Yes	Yes	Yes	Yes	**	11

DTV UTILITIES

Product	Supplier	Price	Type	Rating	Issue
AntiA	Zen	£40	Font Enhancer	****	8
BT2 Font Enhancer	HB Marketing	£130	Font Enhancer	***	8
ShowMaker	Silica	£250	Presentation System	***	10
Elan Performer 2	Silica	£180	Presentation System	****	11
Deluxe Video 3	Electronic Arts	£100	Presentation System	****	-

MIDI SEQUENCERS

Product	Supplier	Price	No. of Tracks	Amiga Smpls	Song Arrange	Rating	Issue
Sequencer One	Gajits	£90	20	Yes	Yes	****	2

PRODUCT LOCATOR

Bars&Pipes Pro	Zone	£200	Unlimited	Yes	Yes	*****	3
Pro-24	Evenlode	£300	24	No	Yes	***	4
Harmoni	HB Marketing	£50	24	Yes	No	***	7
KCS 3.5	Zone	£280	48	Yes	Yes	*****	8
Tiger Cub	Zone	£100	12	Yes	Yes	****	-
Music-X	MicroIllusions	£150	256	Yes	No	****	-
Music-X Junior	MicroIllusions	£50	256	Yes	No	****	-
Master Tracks	MCM	£200	64	No	Yes	***	-
Trax	MCM	£70	64	No	Yes	*****	-
Sequencer One Plus	Gadgits	£50	32	Yes	Yes	****	16

MISC MIDI SOFTWARE

Product	Supplier	Price	Type	Rating	Issue
X-Or	Zone	£220	Librarian	****	6
CMPanion	Gajits	£100	Patch Editor	****	6
Caged Artist	Zone	£100	Patch Editor	***	6
Copyist Apprentice	Zone	£100	Score Notation	****	-
Copyist DTP	Zone	£230	Pro Score Notation	****	-
Audition 4	HB Marketing	£50	Sample Editor	*****	10
AudioMaster 4	HB Marketing	£80	Sample Editor	*****	-
Audio Sculpture	SMG	£50	Sample Sequencer	**	12
Quartet	MicroDeal	£50	Sample Sequencer	***	-
Mugician	Thalamus	£30	Sample Sequencer	***	-
Music Studio	HB Marketing	£25	Sample Sequencer	**	-
TFMX	HB Marketing	£45	Sample Sequencer	***	-
OctaMED 2	AmigaNuts	£20	Sample Sequencer	*****	-
SuperJAM!	Blue Ribbon Sound.	£100	Algorithmic Composition	****	15

EDUCATIONAL SOFTWARE

Product	Supplier	Price	Type	Rating	Issue
Learn to Read With Prof	Prisma	£25	Reading	***	2
The Three Bears	School Software	£23	Reading	***	2
Donald's Alphabet Case	Entertainments Int.	£25	Reading	***	2
Let's Spell	Softstuff	£20	Writing	****	2
Things To Do With Words	Softstuff	£20	Writing	***	2
Kids Type	GeniSoft	£25	Writing	****	2
Mickey's Zoo	Entertainments Int.	£25	Maths	***	2
Game, Set & Match	GeniSoft	£21	Maths	**	2
Magic Maths	School Software	£23	Maths	***	2
Fun School 3	Europress	£25	3 'R's	*****	2
Fun School 4	Europress	£25	3 'R's	*****	9
Puzzle Book 1	Softstuff	£20	3 'R's	****	2
Sesame Street	Merit Software	£16	Painting	***	2
Play It Safe	Deja Vu	£3.50	General	****	2
Pick A Puzzle	Deja Vu	£2.50	Jigsaw	***	2
Hooray For Henrietta	Sketlander	£25	Maths	***	2
Back To Basics	HB Marketing	£40	Maths	***	9
Maths Adventure	HB Marketing	£26	Maths	****	9
Spell!	Europress	£9	Writing	***	3
Maths Blaster Plus	Ablac Computec	£40	Maths	***	3
Maths Mania	School Software	£23	Maths	****	3
Better Spelling	School Software	£23	Writing	****	3
Answer Back Quiz	Kosmos	£20	3 'R's	****	3
Weather Watcher	GeniSoft	£25	Weather	***	4
What Is It?	GeniSoft	£20	Geography	****	4
Better Maths	School Software	£23	Maths	***	4
French Mistress	Kosmos	£20	French	****	4
Mr Robot's Speak&Spell	HB Marketing	£25	Writing	***	6
Early Learning Maths	ESP Software	£20	Maths	***	6
SpelliCopter	ESP Software	£20	Writing	****	6
Spell Book	SoftStuff	£8	Writing	****	6

PRODUCT LOCATOR

Cave Maze	Coombe Valley	£12	Quiz		***	7
Maths Dragons	Coombe Valley	£12	Maths		***	7
Shapes & Colours	Rainbow	£8	Basic		****	7
First Letters	Rainbow	£8	Reading		***	7
Reasoning With Trolls	Coombe Valley	£15	Quiz		****	8
Spellbound	Lander Software	£26	Writing		****	10
Cound & Add	Lander Software	£26	Maths		****	10
Pepe's Garden	Prisma	£26	3 'R's		****	10
Picture Book	Triple 'R' Education	£20	3 'R's		*****	10
Money Matters	Triple 'R' Educational	£20	Money		*****	-
Maths Adventure	Kosmos	£26	Maths		***	12
Compendium Six	HB Marketing	£35	Six educational programs		*****	14

PROGRAMMING LANGUAGES

Product	Supplier	Price	Language	Compiler	Rating	Issue
GFA BASIC 3.5	GFA Data Media	£50	BASIC	Separate	****	3,9
GFA Compiler	GFA Data Media	£30	Compiler	-	****	3,9
Blitz	Siren Software	£70	BASIC	Yes	***	3,9
AMOS	Europress	£50	BASIC	Separate	*****	3,9
AMOS Compiler	Europress	£30	Compiler	Yes	****	5,9
AMOS 3D	Europress	£30	BASIC Extension	-	*****	5,7
AMOS Tome	Deja Vu	£30	BASIC Extension	-	****	11
Easy AMOS	Europress	£35	BASIC	No	*****	12
HiSoft BASIC	HiSoft	£50	BASIC	Yes	****	9
RQ Forth	HB Marketing	£80	Forth	Yes	****	9
Lattice C 5	HiSoft	£230	C	Yes	*****	3,9
Aztec C	Precision	£130	C	Yes	****	9
M2 Amiga	Real Time	£125	Modula-2	Yes	****	7,9
ArgAsm	HB Marketing	£60	Assembly	-	***	9
Devpac 3	HiSoft	£70	Assembly	-	*****	10,12

UTILITIES

Product	Supplier	Price	Type	Rating	Issue
Ami-Back 1.4	Omega Projects	£50	Hard Disk Backup	*****	9
QuarterBack	HB Marketing	£50	Hard Disk Backup	****	5
Personal Fonts Maker	HB Marketing	£70	Bitmap Font Editor	***	7
GB Route Plus	Complex Computers	£80	Journey Planner	*****	10
GB Route Plus Edit	Complex Computers	£30	Editor For GBRoute	****	10
Flow 3.0	Silica	£80	Ideas Processor	***	10
Turbo Print Pro	HB Marketing	£50	Enhanced Printing	****	11,12
Directory Opus	Checkmate Digital	£40	Directory Utility	*****	-
MapMaster	Alternative Image	£54	Image Mapping package	****	14
SurfaceMaster	Alternative Image	£28	Add on for Imagine	****	14
Touch Typist	Sector Software	£14	Teach yourself touch typing	****	15
SaxonScript	Surface UK	£100	Postscript interpreter	***	15
Smooth Talker	Zen Computers	£140	Video Prompting package	****	16
HotLinks	Silica	£70	Add on for PageStream 2.2	**	16
Shades	Meridian Software	£60	Gradient fills for PageStream	**	16
Hit Kit!	Gadgits	£25	Sequences for Sequencer One	***	16

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Ablac Computec	0626 331464
Accolade	071 738 1391
Alternative Image	0533 440041
Amiga Centre Scotland	031 557 4242
Arnor	0733 68909
Checkmate Digital	071 923 0658
Cloudhall	0604 231211
Commodore	0628 770088
Complex Computers	0706 224531
Computech	0702 206165
Coombe Valley	0626 779695
Deja Vu	0942 495261
Digita	0395 270273
Digital Multimedia	0702 206165
Electronic Arts	0753 549442
Entertainments Int	0268 541212
ESP Software	0702 600557
Europress	051 357 1275
EvenLode SoundWorks	0993 898484
ExpressWorks	0252 726255
Gagits Music Software	061 236 2515
GeniSoft	0753 686000
GFA Data Media	0734 794941
Harwoods	0773 836781
HB Marketing	0753 686000
HiSoft	0525 718181
Interactive Technology	0423 501321
Kosmos	0525 53942
Kuma	0734 844335
Lander Software	041 357 1659
Marcam Ltd	071 258 3454
MCM	081 963 0663
Meridian	0533 896743
Merit Software	0101 214 385 2353
MicroIllusions	0480 496497
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Prisma Software	0244 326244
Radiance	0101 408 270 7420
Rainbow	0392 77369
Real Time Associates	081 656 7333
Rombo Productions	0506 466601
School Software	010 353 61 45399
Sentinel	0932 231164
Silica	081 309 1111
Siren Software	061 724 7572
Sketlander	041 357 1659
SMG	0274 562999
Softstuff	0732 351234
Surface UK	081 566 6677
Triple 'R' Software	0742 780370
Zone	081 7666564

BUYING ADVICE FOR SHOPPERS

Whether buying over the phone or at a local store, here's our advice on how to get what you want

BUYING IN PERSON

- Where possible, always test any software and hardware in the shop before taking it home, to make sure that it works properly.
- Make sure you have all the necessary leads, manuals or other accessories you need.
- Don't forget to keep your receipt.

BUYING BY PHONE

- Be as clear as possible when stating what you want to buy. Make sure you confirm all the technical details of what you are buying. Some things to bear in mind are version numbers, memory requirements, other required hardware or software and compatibility with your particular model of Amiga (that is, make sure you know which version of Kickstart you have).
- Check the price you are asked to pay, and make sure that it's the same as the price advertised.
- Check that what you are ordering is actually in stock.
- Check when and how the article will be delivered, and that any extra charges are as stated on the advert.
- Make a note of the date and time when you order the product.

BUYING BY POST

As with buying by phone, you should clearly state exactly what it is you are buying, at what price (refer to the magazine, page and issue number where it's advertised) and give any relevant information about your system set-up where necessary. You should also make sure you keep copies of all correspondence both to and from the company concerned.

MAKING RETURNS

Whichever method you buy by, you are entitled to return a product if it fails to meet any one of the following three criteria:

- The goods must be of 'merchantable quality'.
- The goods must be 'as described'.
- The goods must be fit for the purpose for which they were sold.

If they fail to satisfy any or all of the criteria, then you are then entitled to:

- Return them for a refund.
- Receive compensation for part of the value.
- Get a replacement or free repair.

When returning anything, ensure that you have proof of purchase and that you return the item as soon as possible after receiving it. For this reason it is important that you check the hardware or software as soon as it is delivered to make sure everything you ordered is there and works as it is supposed to.

HOW TO PAY

Paying by credit card is the most sensible way, whether buying in person, by post or on the phone, because you may be able to claim the money from the credit card company even if the firm you ordered from has gone bust or refuses to help sort out your problem.

Otherwise, you should pay by crossed cheque or postal order – never send coins or notes through the mail.

GETTING REPAIRS

Always check the conditions of the guarantee, and servicing and replacement policy, so that you know what level of support to expect. Always fill in and return warranty cards as soon as possible, and make sure that you are aware of all the conditions contained in the guarantee.

BUYING PD

Even though PD software is relatively inexpensive, you should still apply the guidelines set out above, making sure that you confirm all orders as clearly as possible.

Shopping around is still important when buying PD because different houses charge different prices for the same disks. There is no set pricing structure for disks, but bear in mind that PD houses are, in theory, supposed to be non-profit making operations. AS

A CHECK LIST FOR MAIL ORDER BUYING

1 **Make sure you know exactly what you want. Draw up a checklist of the specifications you are looking for and what you want it to be able to do. Check with the suppliers that their product matches your list**

2 **Will the product you have in mind work with your existing set-up, and anything else you are planning to buy?**

3 **Can you see a demonstration? Many products are on display at computer shows around the country.**

4 **Are there any hidden extras? Does it need 1Mb to run, or a hard disk?**

5 **What technical support is provided by the supplier? Does the manufacturer offer after-sales advice? Check before you buy.**

6 **Check the guarantee terms. How long is the free warranty? What does it offer?**

7 **Draw up a list of these details and make them a condition of your order.**

8 **Check the price and delivery details when you order, and make a note of them.**

9 **Note down when you placed the order and who you spoke to.**

10 **When it arrives, check everything carefully. If anything is missing, don't use the product at all – contact the supplier. If it doesn't work, make the obvious checks such as the fuse. If it still doesn't work don't try to fix it – contact the supplier.**

ADVERTISERS INDEX

CITIZEN

DOT MATRIX INK JET AND NOTEBOOK PRINTERS

ALWAYS A GOOD IDEA

Silica presents some great offers on the award winning range of high quality matrix printers from Citizen. Each Citizen printer is built in the UK to exacting standards, ensuring superb reliability and output. Our confidence in Citizen's quality is such that we are pleased to include a 2 year guarantee with every printer. Plus, if you buy a Citizen printer (not inkjet) from us, we will give you the Silica Printer Starter Kit (worth £29.38), **FREE OF CHARGE!**

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- *Citizen 120D+ - 9 pin - 80 column*
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- *4K Printer Buffer + 2 Fonts*
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+VAT= £135.13 ref: PRI 2120

The Citizen 120D printer comes supplied with a parallel interface as standard. If you require a serial interface instead, please state ref: PRI 2125 when placing your order with Silica.

9 PIN PRINTERS



300 CPS — 80 COLUMN

- *Citizen Prodot 9 - 9 pin - 80 column*
- *300cps Draft, 60cps NLQ*
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192 CPS — 80 COLUMN

- *Citizen Swift 9 - 9 pin - 80 column*
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- *FREE Silica Printer Starter Kit*

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SAVING:	£105
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24 PIN PRINTER



PRINTER + SOFTWARE + COLOUR

- *Citizen Swift 24e - 24 pin - 80 column*
- *216cps Draft, 72cps LQ*
- *8K Printer Buffer + 6 Fonts*
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- *Graphics Resolution: 360 x 360dpi*
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24 PIN PRINTERS



192 CPS — 80 COLUMN

- *Citizen 224 - 24 pin - 80 column*
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- *Parallel Interface*
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- *Epson and IBM Emulation*
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- *FREE Silica Printer Starter Kit*

RRP	£269
COLOUR KIT	£38
SILICA STARTER KIT	£25
TOTAL VALUE:	£332
SAVING:	£133
SILICA PRICE:	£199

£199
+VAT= £233.83 ref: PRI 2484



192 CPS — 136 COLUMN

- *Citizen Swift 24x - 24 pin - 136 column*
- *192cps Draft, 64cps NLQ*
- *8K Printer Buffer + 4 Fonts*
- *Parallel Interface*
- *Graphics Resolution: 360 x 360dpi*
- *Epson, IBM and NEC P6 Emulation*
- *Colour Option Available*
- *FREE Silica Printer Starter Kit*

RRP	£489
SILICA STARTER KIT	£25
TOTAL VALUE:	£514
SAVING:	£165
SILICA PRICE:	£349

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+VAT= £410.08 ref: PRI 2574

INKJET PRINTER



360 CPS — 80 COLUMN

- *Citizen Projet - inkjet - 80 column*
- *360cps Draft, 120cps NLQ*
- *50 Nozzle Head - Whisper Quiet 47dB(A)*
- *8K Printer Buffer + 3 Fonts*
- *Optional HP Compatible Font cards*
- *Parallel Interface*
- *Graphics Resolution: 300x300dpi*
- *HP Deskjet plus emulation*

RRP	£496
TOTAL VALUE:	£496
SAVING:	£137
SILICA PRICE:	£359

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+VAT= £421.83 ref: PRI 2090

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64 CPS — 80 COLUMN

- *Citizen PN48 Notebook Printer*
- *Non-impact Printing on Plain Paper*
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- *Parallel Interface*
- *Graphics Resolution: 360 x 360dpi*
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- *Powered From Mains, Battery or Car Adaptor*
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RRP	£325
SILICA STARTER KIT	£25
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SAVING:	£101
SILICA PRICE:	£249

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FREE! STARTER KIT



This starter kit will help you to get you up and running with your new Citizen dot matrix or notebook printer from Silica Systems. Plus, for a limited period only, we are including a Citizen Print Manager for the Amiga free of charge as part of the Silica Starter Kit, bringing the total value of the free kit up to £44.33.

- 3½" Disk - Amiga & ST Drivers
- 3½" Disk - Driver for Windows 3
- 2 Metre Parallel Printer Cable
- 200 Sheets of Continuous Paper
- 100 Continuous Address Labels
- 5 Continuous Envelope
- Amiga Print Manager

The Amiga Print Manager dramatically enhances printed output. Provides drivers for all Citizen printers and replaces Amiga's normal printer preference system - printing is quicker, colours more vibrant, graphics less fuzzy. Easy to use with instructions.

Features include:

- Improved Image Smoothing
- Gamma/Colour Correction
- Image Scaling
- Colour Separation
- Reduces/Illiminates Banding

STARTER KIT	£29.38
AMIGA PRINT MANAGER	£14.95
TOTAL VALUE	£44.33

ACCESSORIES

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PRA 1200	120D	£71.38
PRA 1215	124D/224/Swift 9/24	£88.70
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PRA 1189	120D+	£56.45
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PRA 1753	124D/224/Swift 24	£13.10
PRINTER STAND		
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ORIGINAL RIBBONS		
RIB 3520	120D/Swift 9 Black	£2.91
RIB 3949	Swift 9/9x Black	£7.15
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RIB 3248	PN48 Single Strike	£3.61
RIB 3348	PN48 Multi Strike	£3.61
COLOUR KITS		
PRA 1236	224/Swift 9/24/24e	£35.25
PRA 1240	Swift 9x/24x	£35.25
PN48 ACCESSORIES		
PRA 1148	PN48 Battery	£51.70
PRA 1155	PN48 Cable Extn.	£ TBC
PRA 1162	PN48 Car Adaptor	£ TBC

Accessories prices inc. VAT & delivery

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Before you decide when to buy your new printer, we suggest you think very carefully about WHERE you buy it. Consider what it will be like a few months after you have made your purchase, when you may require additional peripherals or software, or help and advice with your new purchase. And, will the company you buy from contact you with details of new products? At Silica Systems we ensure that you will have nothing to worry about. We have been established for over 12 years and, with our unrivalled experience and expertise, we can now claim to meet our customers' requirements with an understanding which is second to none. But don't just take our word for it. Complete and return the coupon now for our latest FREE literature and begin to experience the "Silica Systems Service".

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SILICA SYSTEMS

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Opening Hours:	Mon-Sat 9.30am-6.00pm	No Late Night Opening	Fax No: 071-323 4737
LONDON SHOP:	Selfridges (1st Floor), Oxford Street, London, W1A 1AB		**Tel: 071-629 1234**
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Have a go at the three questions below and send your answers on a postcard or the back of a sealed envelope to:
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Amiga Shopper
29 Monmouth Street
Bath BA1 2DL
The closing date is September 7.

THE CHALLENGE

QUESTION 1

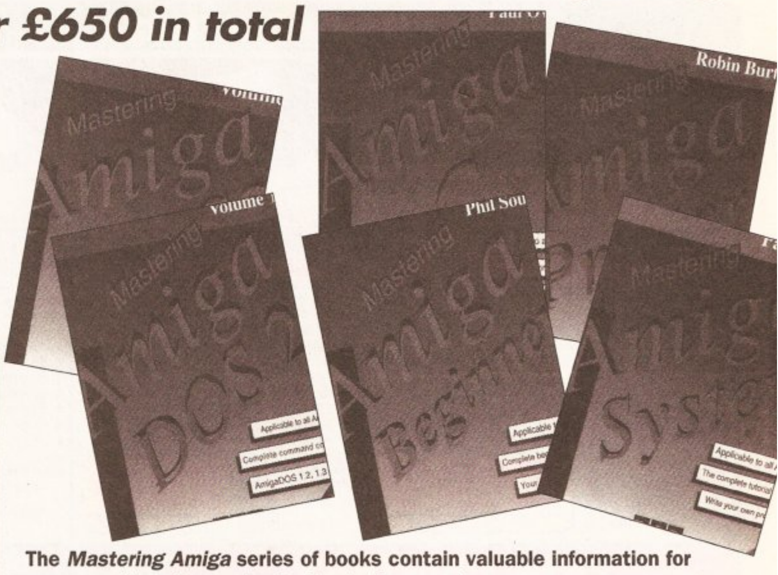
Who is the undisputed master of AmigaDOS?
a) Mark Smiddy
b) Mickey Mouse
c) Bob Monkhouse

QUESTION 2

What is the name of the part of the Amiga's operating system dealing with windows, the mouse and so on?
a) Windows
b) Instinct
c) Intuition

QUESTION 3

What was the predecessor to C?
a) A
b) B
c) C–



The *Mastering Amiga* series of books contain valuable information for everyone, from the novice to the Amiga expert

CUMANA CAPER!

The lucky winners of July's competition are: N Culpin of Staybridge, Cheshire, Michael Suttling of Grays, Essex; A Flatman of Crawley, West Sussex; Lee Cobb of London; Paul Bonehill of Nuneaton; W Atkinson of Whitley Bay, Tyne and Wear; Paul Seale of Burgess Hill, West Sussex; Paul Shepherd of Deepcar, Sheffield; Mark Hartshorne of Ilkley, West Yorkshire and EC Gallagher of Camberley, Surrey. You'll each be receiving a COM-201 memory expansion and disk controller from those kind Cumana folk.

IN NEXT MONTH'S ISSUE

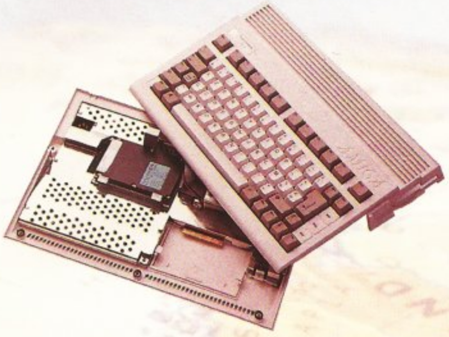
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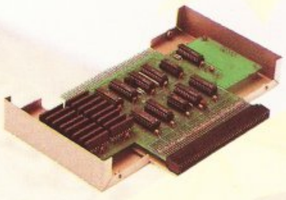
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